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Set sail on the seven seas, investigate stunning lands or blast off into space! In Future Genius: Greatest Explorers, you'll meet the amazing men and women who discovered the world we live in. Solve some cool brain teasers, be creative with some crafts and head outside your front door to become an explorer yourself with our activities.

WHAT WILL YOU DISCOVER?

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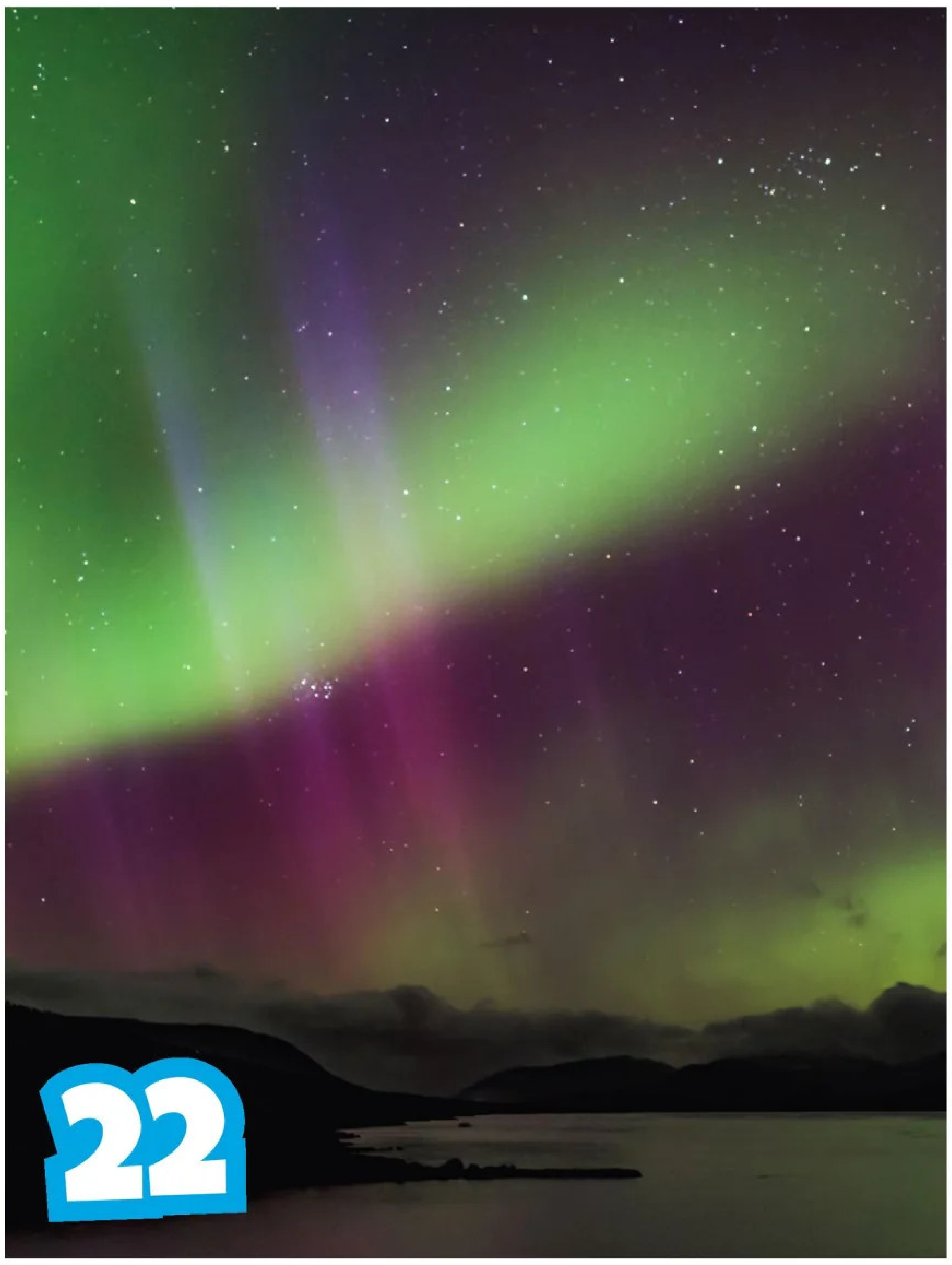

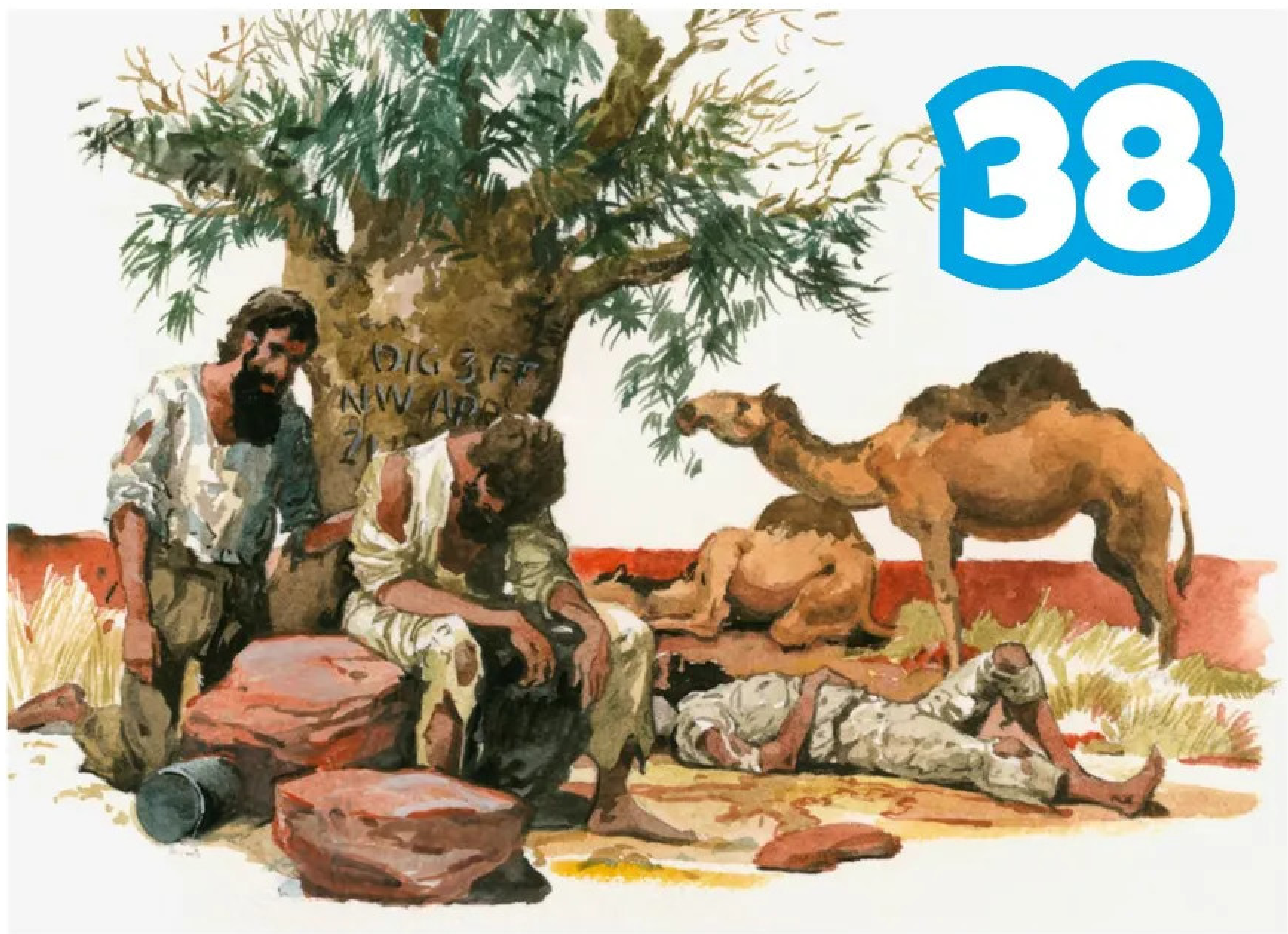

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When you see the "Scan with your phone or tablet" prompt, use your device to scan the QR code, which looks like this

Hold your mobile device over the image and watch it come to life! Your device needs to be connected to the internet for this to function

WHAT IS AN EXPLORER?

Explorers are curious and adventurous people who have travelled to new and unknown places all around the world. Unafraid of taking risks, they have often gone on journeys that have been very dangerous. In doing so, they have made many awesome discoveries and achieved many great things that no one else had ever done before.

Without the explorers of the past, the world would be very different today. As you will soon see, many explorers made scientific breakthroughs and changed the way we think. They also discovered new lands, brought different communities into contact with one another and influenced how countries evolved.

Past explorers created maps as well. They also discovered treasure, filling their boats with many things that they believed would earn them their fortune, from glistening gold goodies to fabulous fresh food. They introduced new ways of working and terrific technology. Some even found cities that had lain abandoned for centuries.

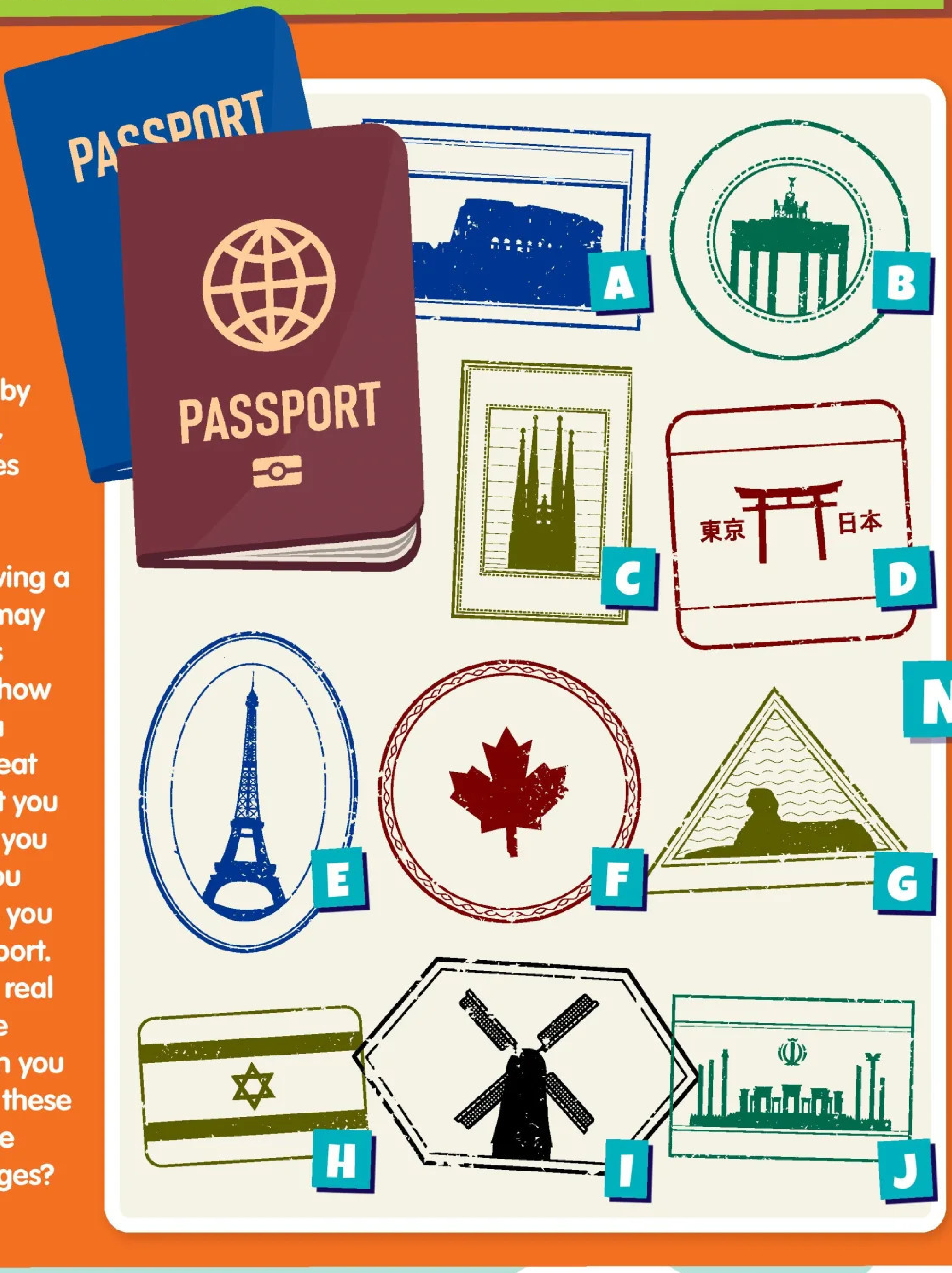
More recently, explorers have gone boldly where no humans had ever gone before, deep into the oceans or far into space, so let's go on a journey and meet some explorers. Before we do though, we'll take a more in-depth look at what motivated them to learn about the world and make exciting discoveries.

WHERE IN THE WORLD?

When exploring the world today, you will need a passport unless the countries have an agreement between them (such as in the European Union). A passport is an official travel document issued by a country's government, and it lets other countries know who you are when travelling.

When entering or leaving a country, your passport may be stamped. This allows border guards to know how long you have been in a country, but they are great for adventurers. They let you keep a record of where you have been. The more you travel, the more stamps you can collect in your passport.

These stamps are not real (most stamps have quite boring designs!), but can you work out which country these stamps could have come from, based on the images?

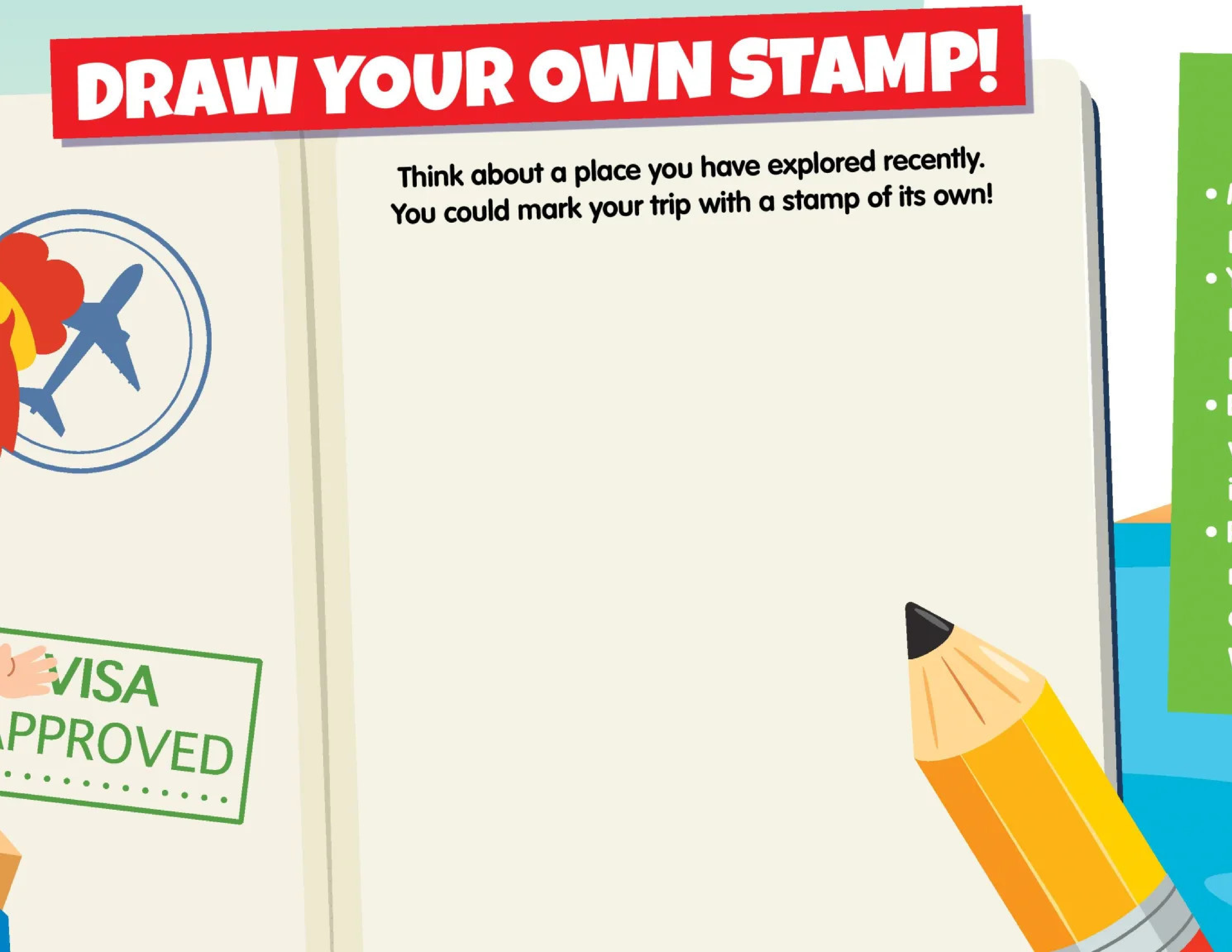


- GERMANY
- FRANCE
- JAPAN
- ISRAEL
- CANADA
- NETHERLANDS
- SPAIN
- IRAN
- EGYPT
- ITALY

ANSWERS: A. Italy B. Germany C. Spain D. Japan E. France F. Canada G. Egypt H. Israel I. Netherlands J. Iran

DRAW YOUR OWN STAMP!

Think about a place you have explored recently. You could mark your trip with a stamp of its own!



FAST FACTS

- Most of the world's passports are red.
- Your mouth has to be closed in a passport photo.
- British passports were invented in 1414.
- Photos were required by law after the First World War.

© Getty Images

EXPLORERS AND TRADING

Thanks to trade links, people can buy items from across the world. But this hasn't always been possible. Europeans had never seen a banana until the 15th century, and coffee wasn't drunk in Europe for another 200 years!

People did not know these things existed, but explorers who sailed the seas and crossed deserts discovered them. When demand grew, they began to trade them.

As the years went by, international trade routes were established. The most famous was the Silk Road, a network of routes that connected China with the Roman Empire. It was used to transport silk, spices, tea, porcelain and jade, with spices being very highly valued. Demand for them grew throughout the Roman era and medieval times.

From the 15th to the 17th centuries, explorers were asked to find new trade routes. At this time, the Ottoman Empire controlled the Europe-to-Asia trade routes and, by limiting trade, European countries were being stung by high prices.

These countries wanted to find ways around the Ottoman restrictions. The explorers' job was to find quick and cheap ways of transporting goods while striking up a good relationship with the people they needed to buy them from.

Most of the routes helped to spread ideas and knowledge, but as explorers continued to find new trade partners, European countries became more wealthy. They established trading posts across different lands, which led to countries being colonised (meaning they were effectively taken over).

WORD SEARCH

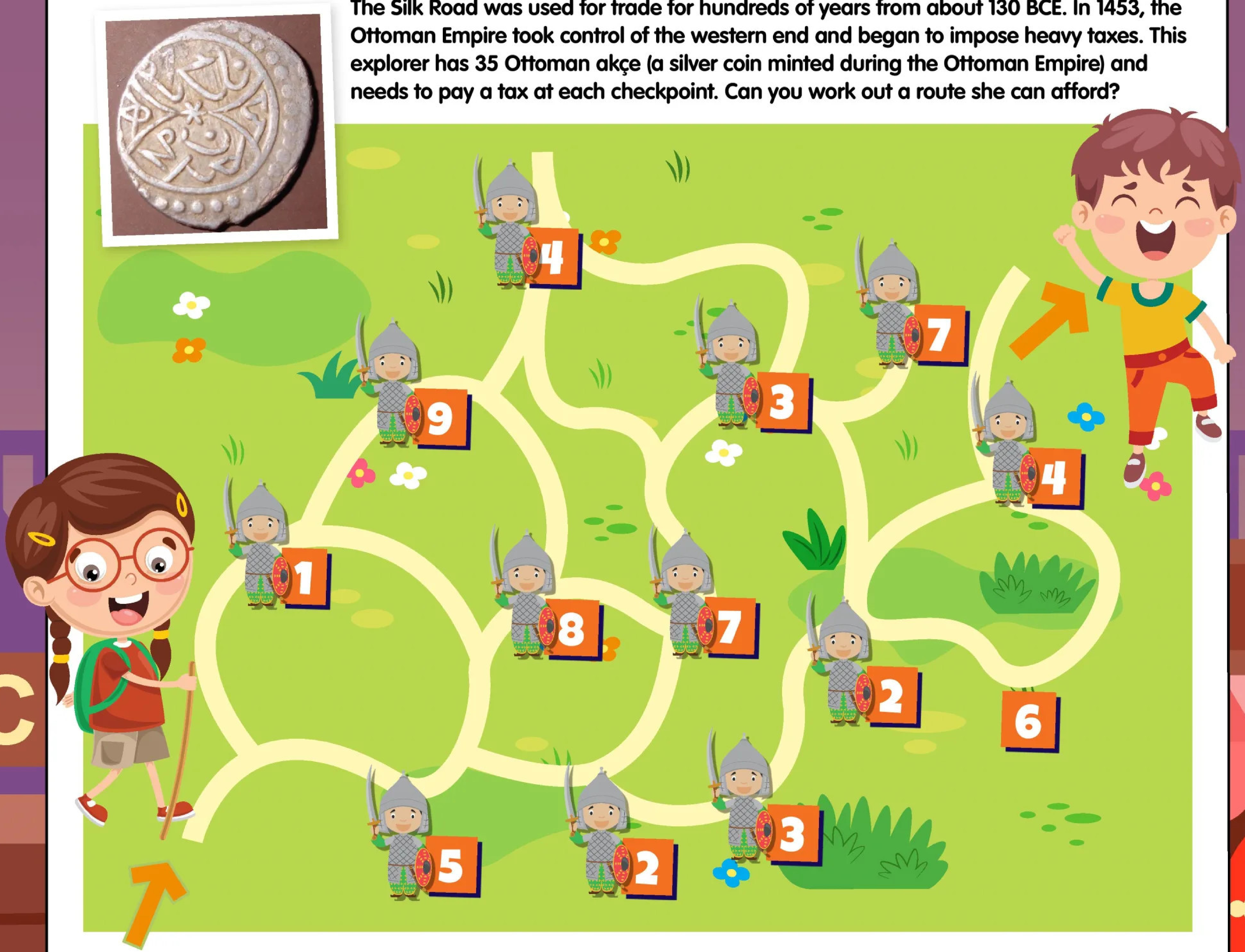
Find items that explorers traded with

Q	Y	L	Q	Y	S	C	F	G	S	U	C	Q	S	N	T	B	E
P	U	Z	H	M	M	F	C	G	U	O	B	A	R	T	V	Y	L
U	E	O	I	G	S	Q	K	K	G	C	O	P	P	E	R	Z	X
B	H	M	Z	E	P	Z	M	W	A	E	C	O	F	F	E	E	R
Z	A	H	P	M	I	S	C	T	R	U	M	S	E	T	R	M	B
R	Q	E	E	S	C	D	I	O	N	K	R	I	L	Q	D	S	R
C	A	R	L	P	E	P	A	L	T	M	W	L	H	Z	E	J	W
L	X	B	T	A	S	W	C	Z	V	T	D	K	B	H	X	H	G
R	H	S	S	C	O	F	F	E	E	E	O	D	Q	I	M	L	Q
B	K	J	V	F	B	Z	Z	Y	J	V	R	N	W	F	S	F	W
O	V	P	S	H	X	I	O	T	Q	G	Q	F	K	K	S	J	P
G	O	L	D	P	T	E	A	S	L	T	S	U	T	G	S	L	S

SPICES HERBS SILK GOLD SILVER
PELTS COFFEE TEA SUGAR
COPPER GEMS COTTON

FIND A WAY!

The Silk Road was used for trade for hundreds of years from about 130 BCE. In 1453, the Ottoman Empire took control of the western end and began to impose heavy taxes. This explorer has 35 Ottoman akçe (a silver coin minted during the Ottoman Empire) and needs to pay a tax at each checkpoint. Can you work out a route she can afford?



MEET ZHANG QIAN!

In 138 BCE, the leader of the Chinese Western Han, Emperor Wu, wanted to find communities to trade with. He asked explorer Zhang Qian to travel across Central Asia and search for friendly people. The journey lasted a number of years. but Qian made many friends. His work opened up new routes between China and Central Asia and led to the creation of the Silk Road.

© Getty Images

EXPLORING TO BUILD EMPIRES

You have just learned that some countries expanded after explorers found new trading partners across the world. These countries also began to create empires, which means they started to control other nations, having taken them over to make use of their land, labour and resources.

Portugal's empire began during the Age of Discovery between the 15th and 17 centuries. At first, Prince Henry the Navigator assisted in the conquering of Ceuta on the north coast of Africa. He then paid explorers to sail the western coast of Africa. This led to the discovery of the islands of Madeira and the Azores, which Portugal claimed.

The country went on to colonise Cape Verde, Mozambique, Brazil and Angola among many others. It also, to its shame, brought slaves from Africa to Europe and introduced the slave trade to the Americas. But Portugal wasn't alone. Explorers also helped Spain to find and seize new lands. In fact, when Christopher Columbus landed on an island in the Bahamas in 1492, he renamed it San Salvador, and claimed it for the king and queen and Spain.

The Spanish Empire ended up controlling large parts of Africa, Asia and the Americas, but in terms of land mass, the British Empire was the largest empire of them all. In the 16th century, explorer Sir Francis Drake claimed territories for Britain, including California and the Galapagos Islands. David Livingstone's experience exploring Africa, meanwhile, saw a lot of land colonised by Britain and other European powers.

Britain also had a big impact 'down under'. Although the Dutch explorer Abel Tasman was the first to reach New Zealand, British explorer James Cook mapped its coastline and claimed the country's two main islands for Britain. Australia – which had been visited by many European explorers – was also claimed by Britain. As you can see, explorers didn't only explore the world, they changed it forever too!

THE BRITISH EMPIRE

The British Empire was the largest empire in history. It began under Queen Elizabeth I, and at its height in 1922, it covered a quarter of the Earth's land surface – 35.5 million sq km (13.7 million sq miles). It also ruled over more than 400 million people. It allowed Britain to become wealthy and powerful, but creating an empire was not always peaceful. It disrupted the lives of people who lived in the areas that became colonised.

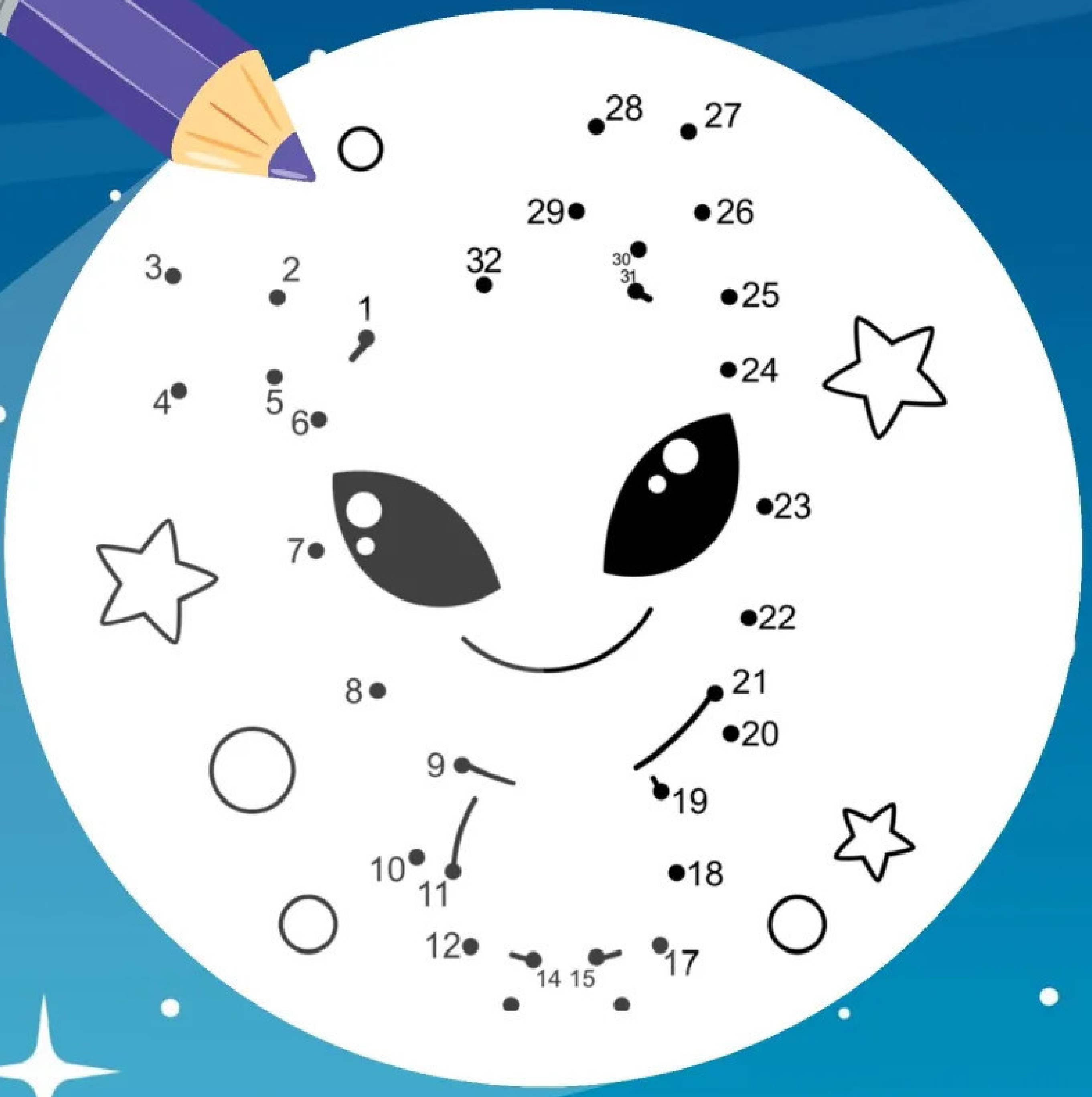
Here is a small number of territories that were in the British Empire – two are false. Can you work out which countries were never part of the British Empire?

- AFGHANISTAN
- AUSTRALIA
- CANADA
- CUBA
- CYPRUS
- FRANCE
- INDIA
- IRAQ
- LAGOS
- MALTA
- NEPAL
- NEW ZEALAND
- PARTS OF THE US
- PHILIPPINES
- RUSSIA
- SIERRA LEONE
- SOUTH AFRICA

ANSWERS: France, Russia

FUTURE COLONISATION!

In the future, humans may live and work on the Moon. Countries and space agencies are considering ways of making use of Earth's natural satellite, and a permanent outpost on the lunar surface may come sooner than you think! At least there are no aliens to disrupt. Or are there?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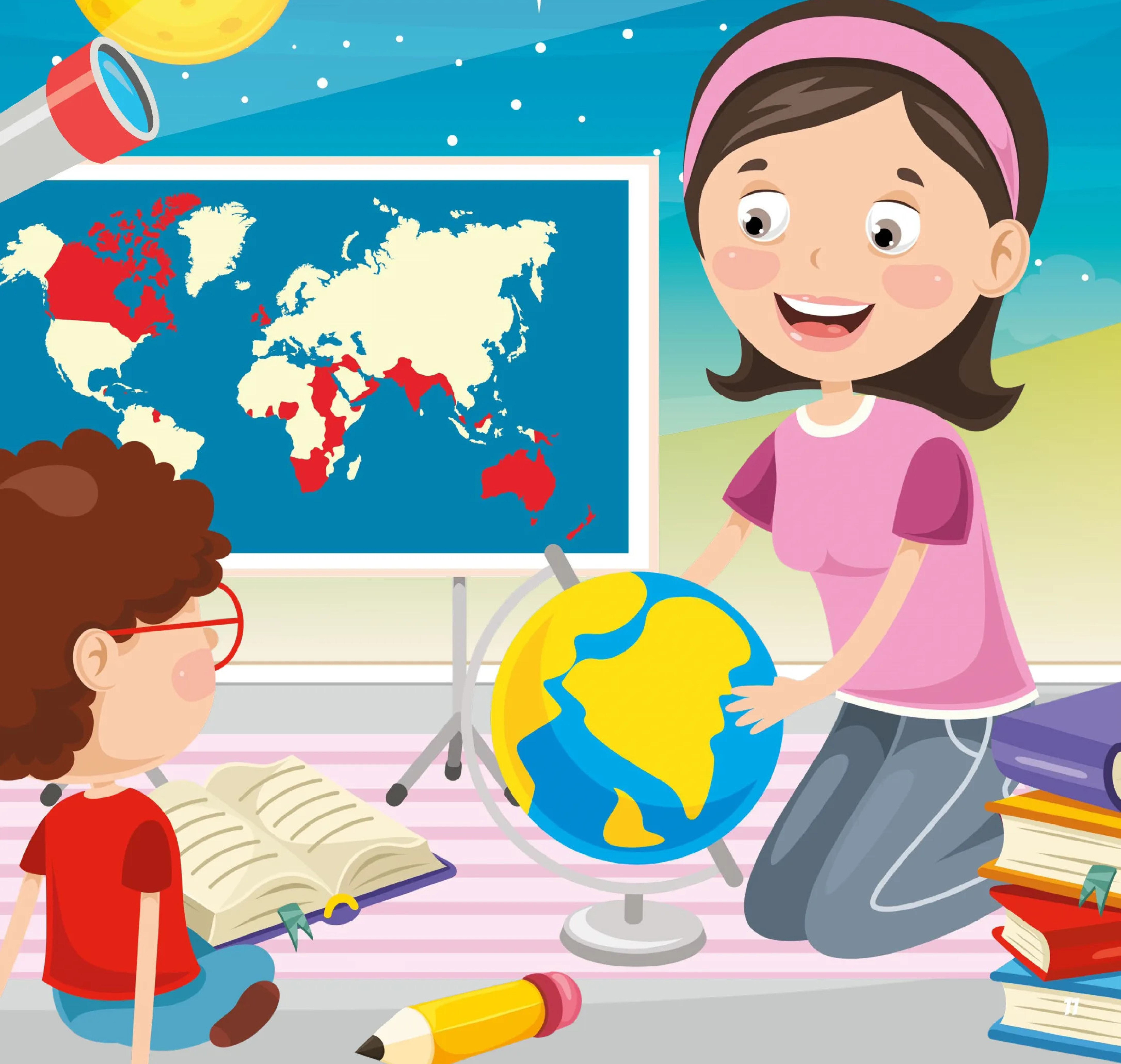


EXPLORING FOR SCIENCE

Many explorers past and present have made discoveries that tell us lots about the world. When Europeans came across lands they had never seen before, they would map the coastlines, describe coastal features and share information about the geography of the countries and the continents they had discovered. They would also create nautical maps that allowed other seafarers to work out where they were going when travelling across the oceans.

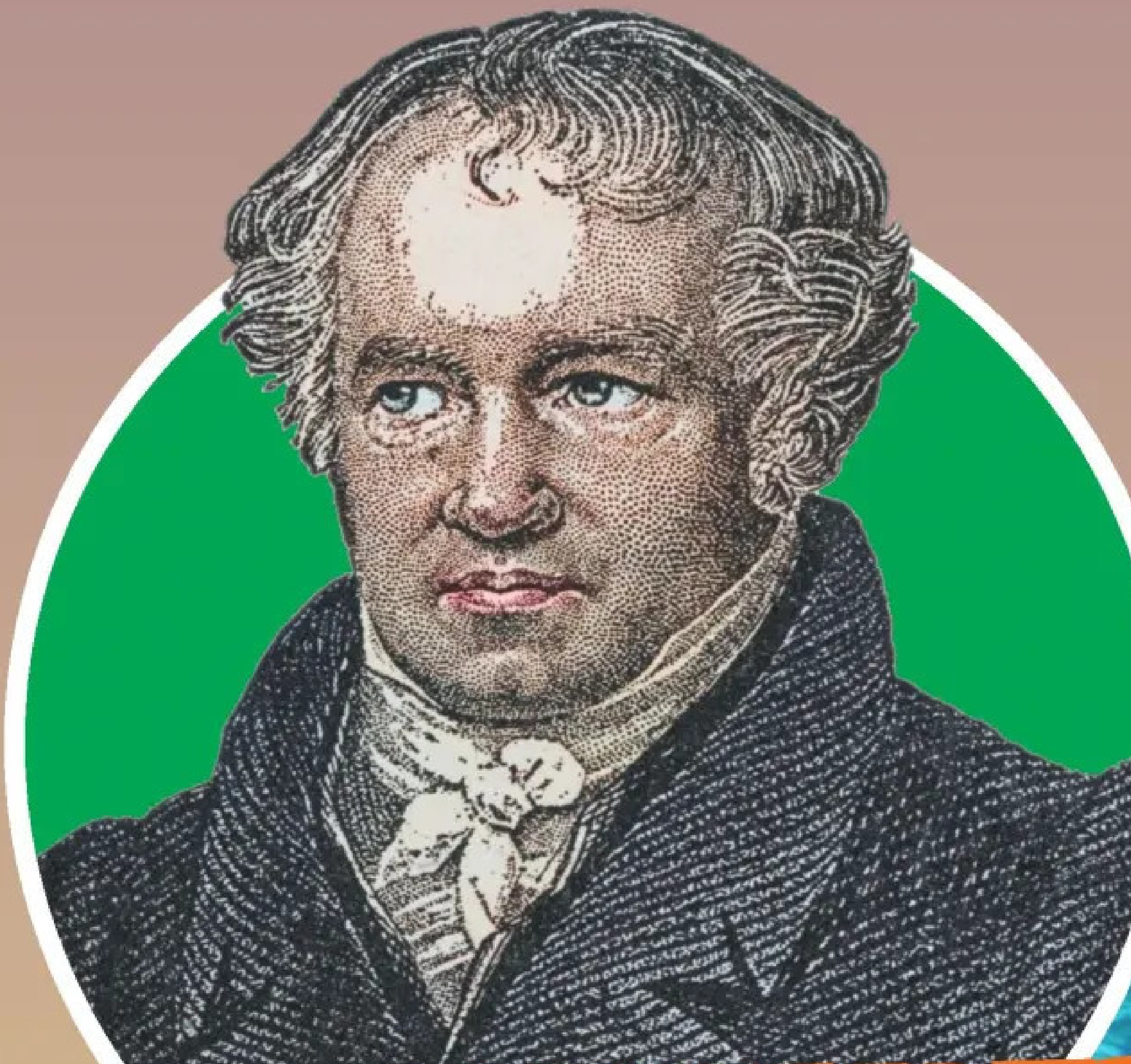
Explorers understood how winds, ocean currents and general weather would affect a journey. They could also share information about their trips and the discoveries they were making. James Cook proved to be a pioneer because he took scientists on board his ships. But discoveries have been made by explorers on land too: when Alexander von Humboldt climbed an inactive volcano in Ecuador, he realised that he was feeling ill because of a lack of oxygen!

In fact, as you will soon find out, some explorers totally changed what people thought about the world. Charles Darwin, for example, came up with a theory that revolutionised biology by scientifically studying animals and plants. Botanical explorer Richard Spruce told us lots of important things about plants in the Amazon jungle.

Without David Douglas, who explored the Scottish Highlands, North America and Hawaii, we might not have discovered many plant species. And if Sir Joseph Banks, who explored Australia, hadn't collected and described new species of animals, we may not have known about them for much longer. Explorers such as these have taught us lots about the world around us!

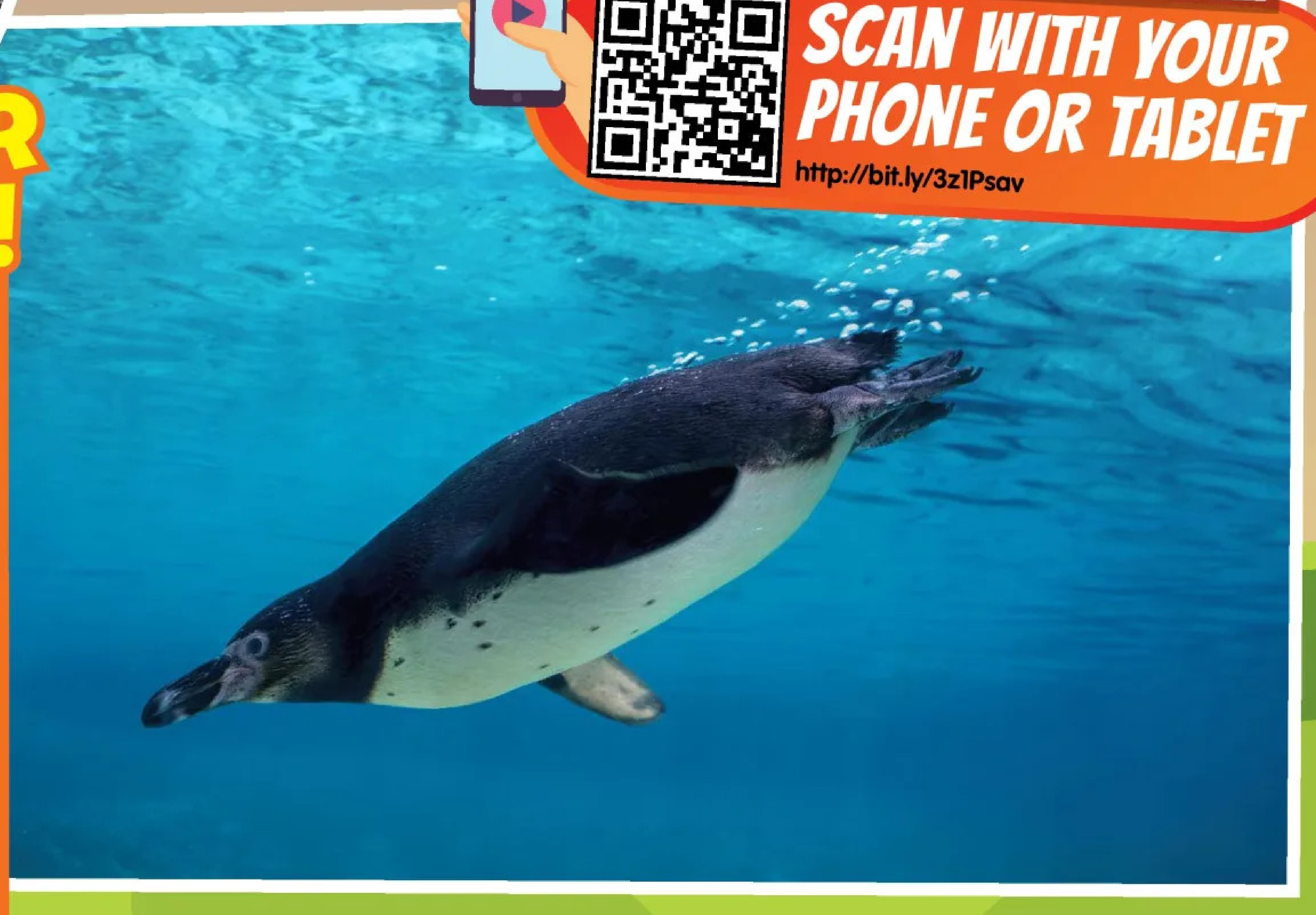
They have also given us interesting glimpses into the past. We are able to learn more about past civilisations by reading descriptions of the people explorers met. By discovering long-lost cities, explorers have even shown the technologies and techniques that were used centuries ago.

But explorers are still making many exciting discoveries today. There are astronauts on board the International Space Station conducting scientific experiments, and probes being sent to far-flung planets in the Solar System to learn more about other worlds. Many exciting times lay ahead!



MEET ALEXANDER VON HUMBOLDT!

During his travels across four continents, explorer Alexander von Humboldt made many scientific discoveries. As well as predicting human-made climate change, he saw the Transit of Mercury (when the planet crossed directly between the Sun and the Earth) and discovered the location of Earth's magnetic equator. He also studied the distribution of plants and animals and discovered a current in the Pacific Ocean. Penguins found swimming in that current are called Humboldt penguins in his honour.



WATCH THIS!

HUMBOLDT PENGUINS FIGHTING OFF VAMPIRE BATS!

SCAN WITH YOUR PHONE OR TABLET

http://bit.ly/3z1Psav

ANSWERS: France, Russia

TRUE OR FALSE?

OCEANOGRAPHERS SAMPLE WATER TO STUDY MARINE LIFE

TRUE ☐ OR FALSE ☐

SAMPLES CAN HELP MEASURE POLLUTION LEVELS

TRUE ☐ OR FALSE ☐

YOU CAN ONLY SAMPLE WATER JUST BELOW THE SURFACE

TRUE ☐ OR FALSE ☐

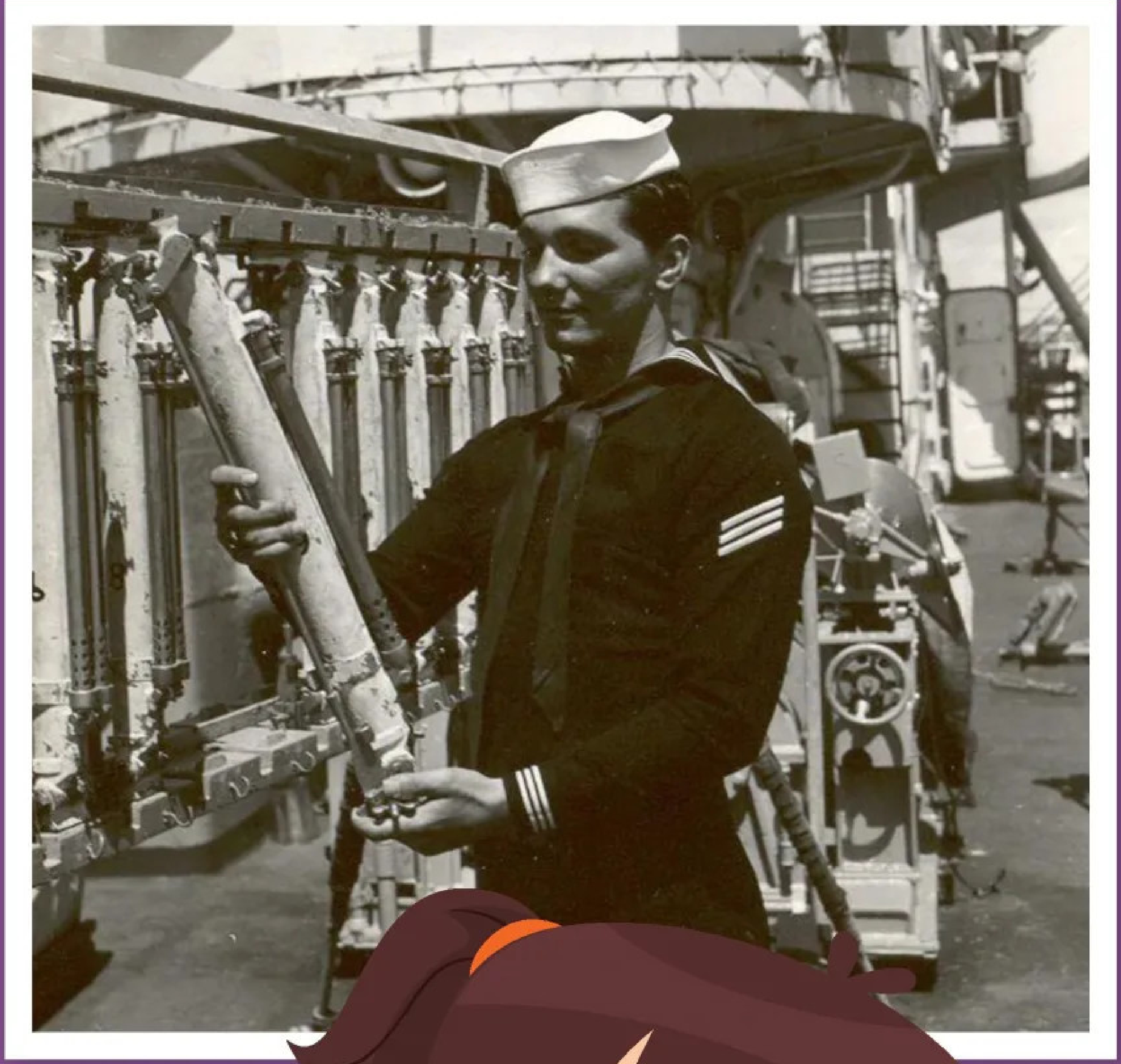
IT'S POSSIBLE TO CHECK HOW MUCH SALT IS IN THE WATER

TRUE ☐ OR FALSE ☐

ANSWERS: True, True, False, True

THE NANSEN BOTTLE

Explorer Fridtjof Nansen led expeditions to the Arctic in the last 19th and early 20th centuries. As well as discovering a deep ocean current, he invented a scientific instrument, known as the Nansen bottle. It had a valve at each end and allowed samples of water to be collected from deep in the ocean. When it was dropped into the water at the required depth, a sample of water would be taken. A weight would be dropped down a line to tip the bottle and close the valves.



EXPLORING FOR TREASURE

As you've already learned, when explorers travelled across the world, they came across lots of amazing items. For some explorers, finding such treasures was a primary motivation. Italian explorer Giovanni Battista Belzoni, for example, loved finding ancient artefacts. When he was rummaging through Egyptian tombs in the 1810s, he focused on items he believed were the most valuable. His booty included a huge statue of the pharaoh Ramesses II called the Younger Memnon, which ended up in the British Museum in London. He also discovered the sarcophagus of the pharaoh Seti I, which after he tried to sell it to the same museum, was bought by architect Sir John Soane for £2,000.

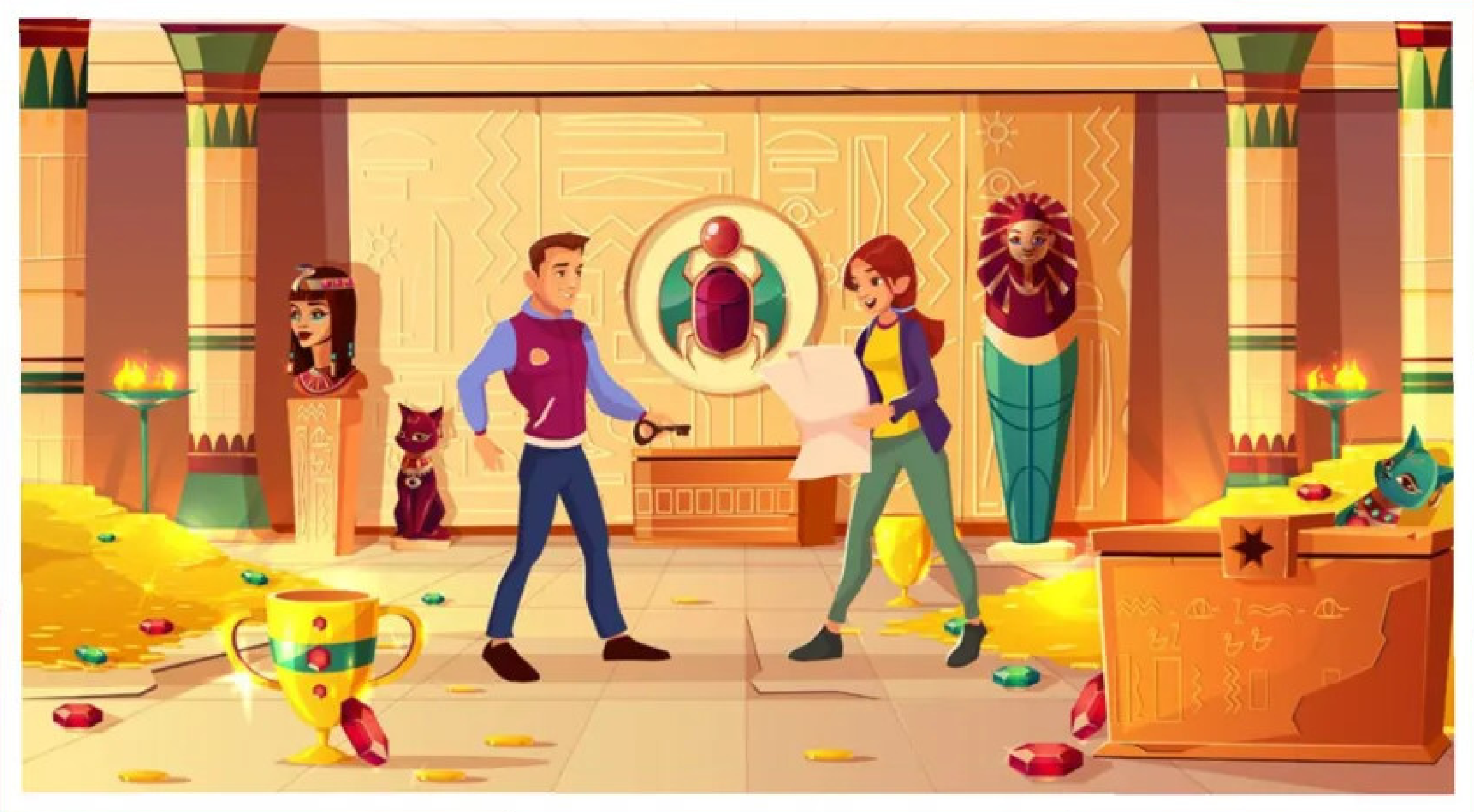
Some have since called him a tomb raider, but as an archaeologist, he was interested in his finds. He wrote about his discoveries and understood their significance. He was also the first person to explore the Pyramid of Khafre, which is the second tallest and largest of the three Ancient Egyptian Pyramids of Giza. But he still had a taste for treasure, and he wasn't alone! Explorer Christopher Columbus was also motivated by the hunt for treasure. King Ferdinand of Spain, who paid for his travels, had uttered the words: "Get gold, humanely if possible, but at all hazards, get gold!", and so Columbus forced people on the lands he discovered to search for gold in mines.

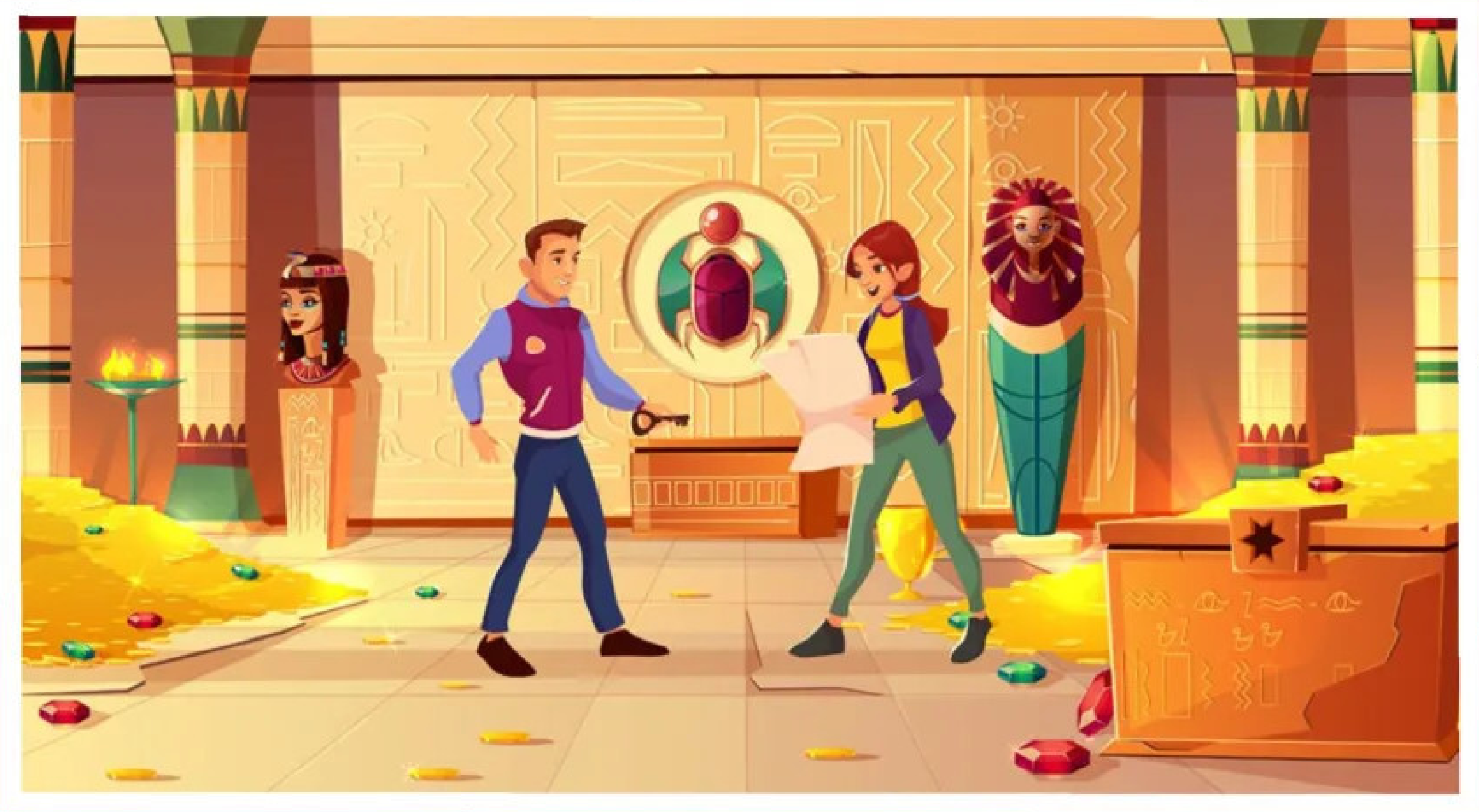
Explorer Hernán Cortés loved gold, too. He plundered the Aztec city of Tenochtitlan and grabbed as much as he could. In some cases, treasures just floated by. That was the case for Sir Francis Drake, who seized a Spanish treasure ship called Nuestra Señora de la Concepción and grabbed loads of coins, gold and silver. The temptation for riches were too much for many, and it undoubtedly motivated other potential explorers to try their luck too.

SPOT THE DIFFERENCE

These two explorers want to grab some treasures, but some of them have vanished.

Can you spot the differences in these two images and identify the missing goodies?

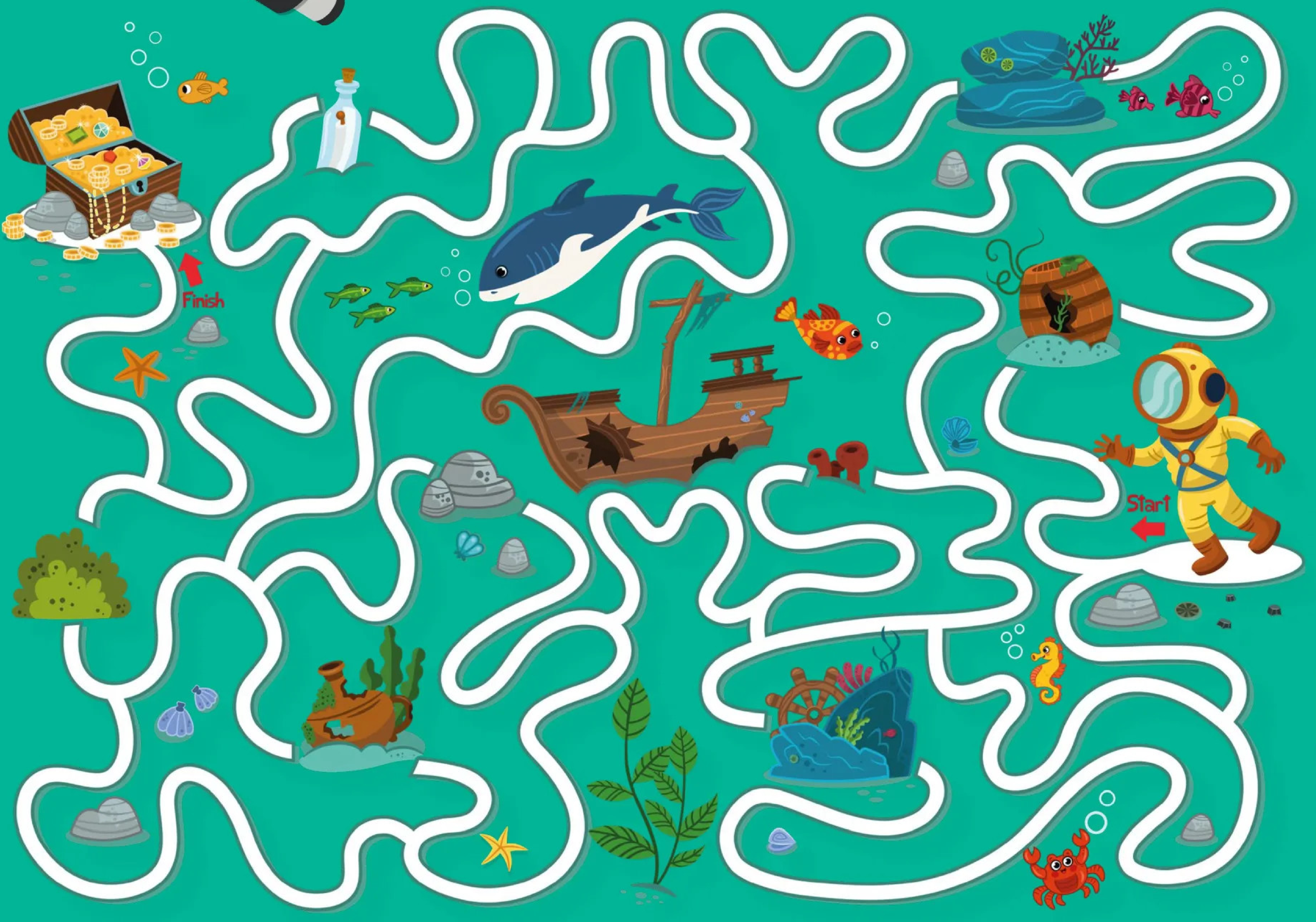




FIND THE TREASURE

Some explorers find long forgotten treasures by going deep underwater. The most valuable shipwreck, according to Guinness World Records, was the San José, launched in 1698. It sank 10 years later and, when it was discovered in 2015, its value was estimated to be as high as $20 billion!

Can you help this deep-diving explorer find treasure underwater?



DID YOU KNOW?

Alejandro Mirabal from Cuba visited 243 historic shipwrecks between December 1986 and August 2017, according to Guinness World Records.

KEEP MOVING!

So now you know what an explorer is. You have learned about the things that motivate many of them and had a glimpse at the amazing work that lots of explorers have achieved.

But wait – there's more. Your journey is going to continue with a look at explorers in greater depth. You will discover how they made an impact on the world and how, even when things haven't always gone to plan, exploring the world has still been beneficial.

After all, exploration is challenging, and that is also an important motivation. Lots of explorers have a great desire to achieve something personal. They embark on journeys knowing that the expedition will often be hard, especially when they are going somewhere no one has been to before.

But if it wasn't for these people, our knowledge of the world (and space) would be much poorer. So let's applaud explorers such as George Kourounis, who became the first person to explore the Darvaza Crater in the Karakum Desert in Turkmenistan in 2013, and Fiann Paul, who captained a team that became the first to row to the Antarctic continent in 2019. The more people explore the world, the more we will discover!

QUICK QUIZ

WHY NOT TEST HOW MUCH YOU'VE LEARNED SO FAR?

WHAT ARE YOU MOST LIKELY TO NEED IF YOU TRAVEL FROM ONE COUNTRY TO ANOTHER TODAY?

A: A driving licence
B: A passport
C: A manual
D: A postage stamp

WHICH EMPIRE MADE TRADE DIFFICULT IN THE 15TH CENTURY?

A: Ottoman Empire
B: Roman Empire
C: Spanish Empire
D: British Empire

WHICH RELIGION WAS SPREAD MOST BY EXPLORERS?

A: Islam
B: Buddhism
C: Hinduism
D: Christianity

WHAT WOULD SEAFARING EXPLORERS TEND TO DO?

A: Map coastlines
B: Go for a swim
C: Keep their destination secret
D: Write a list of demands

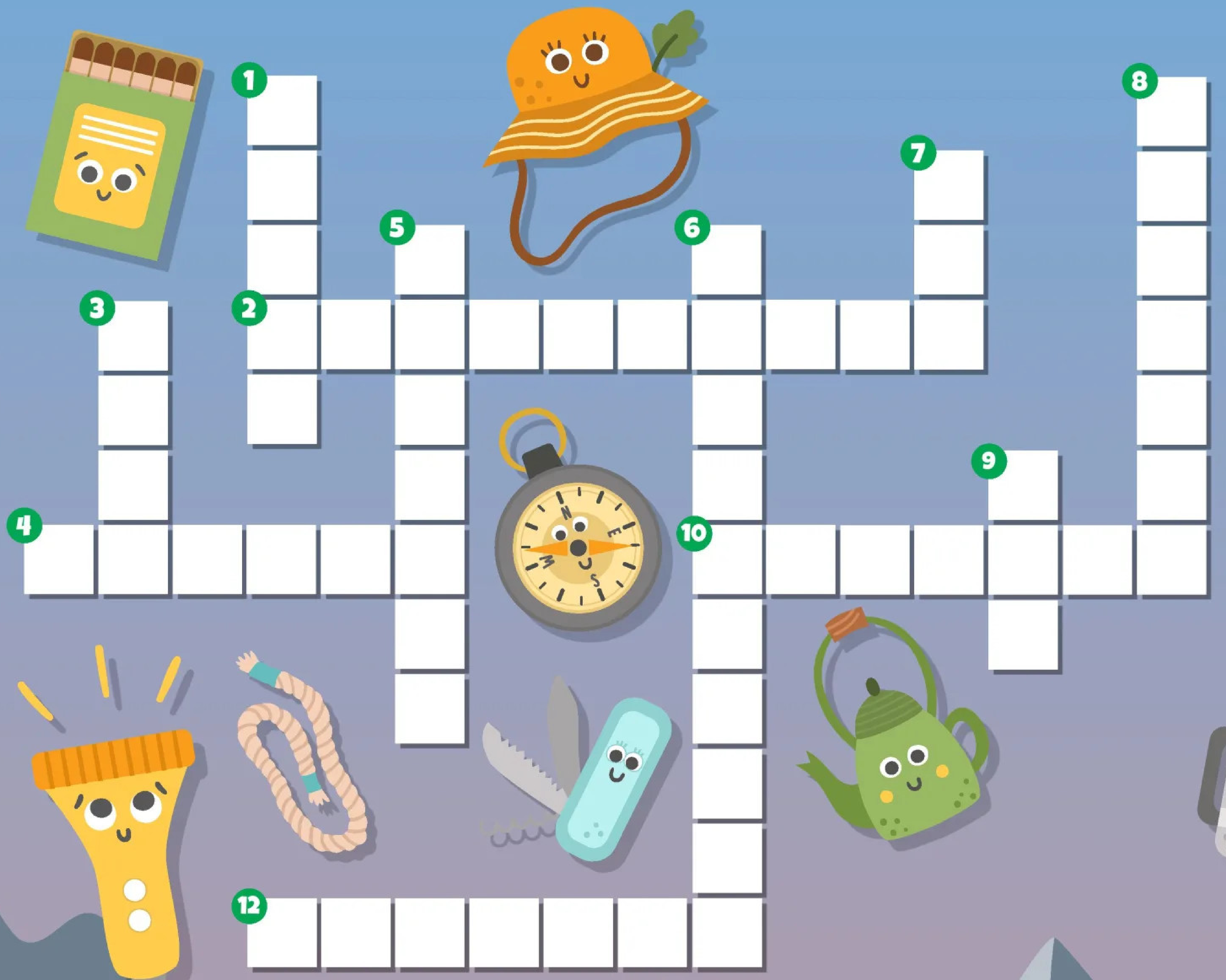
WHAT DID GIOVANNNI BATTISTA BELZONI SELL?

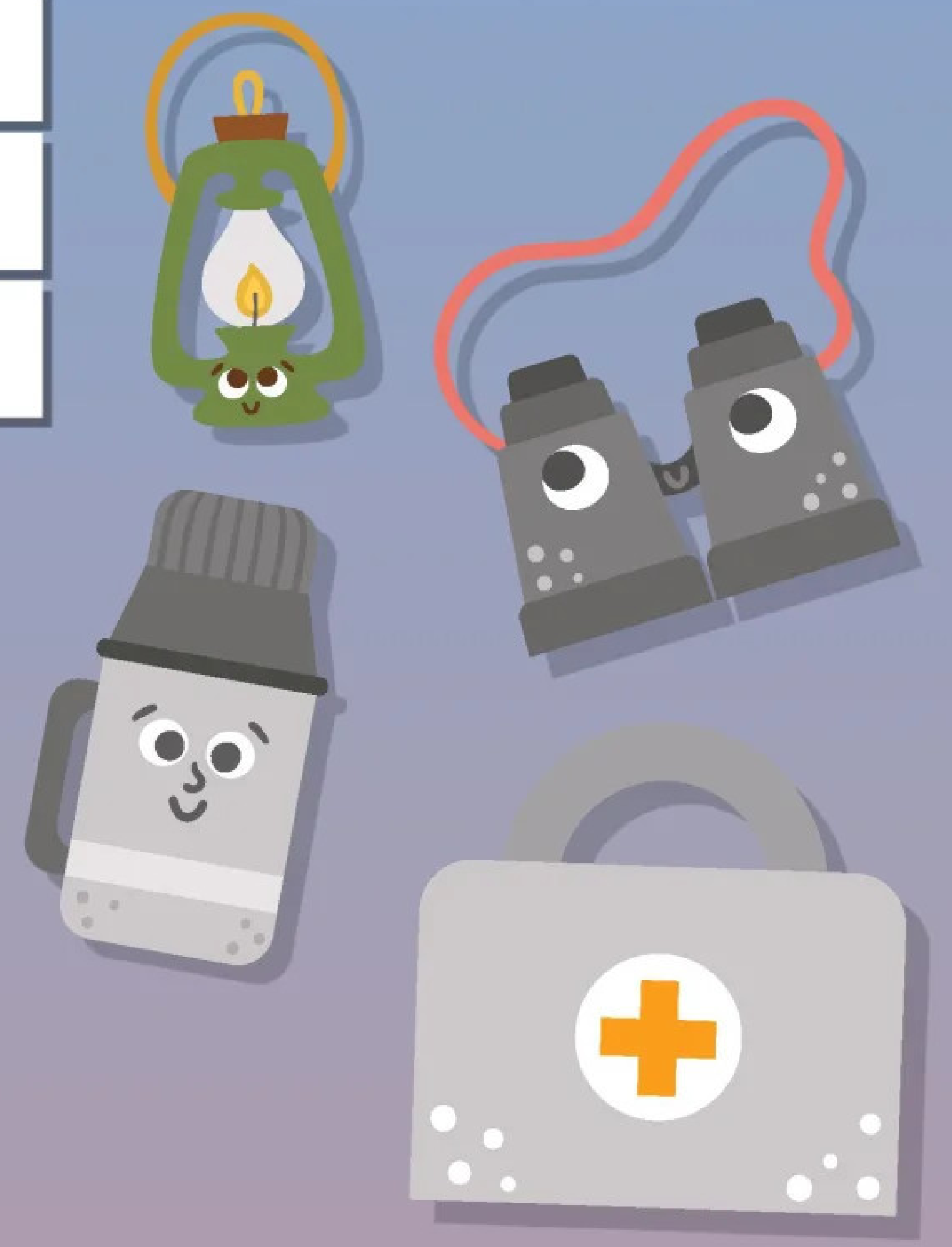
A: Sausages
B: Sauce
C: Sarcophagus
D: Spice

ANSWERS: B, A, D, A, C.

PACK A BACKPACK!

If you were about to embark on an adventure, what items do you think you would need? Take a look at the objects around the crosswords for hints!





ANSWERS: 1: Knife, 2: Flashlight, 3: Rope, 4: Kettle, 5: Lantern, 6: Binoculars, 7: Kit, 8: Thermos, 9: Map, 10: Compass, 11: Hat, 12: Matches

END OF CHAPTER: PUZZLES

WORD SCRAMBLE

Unscramble the words, then use the highlighted letters to form a phrase spoken by explorer Edmund Hillary.

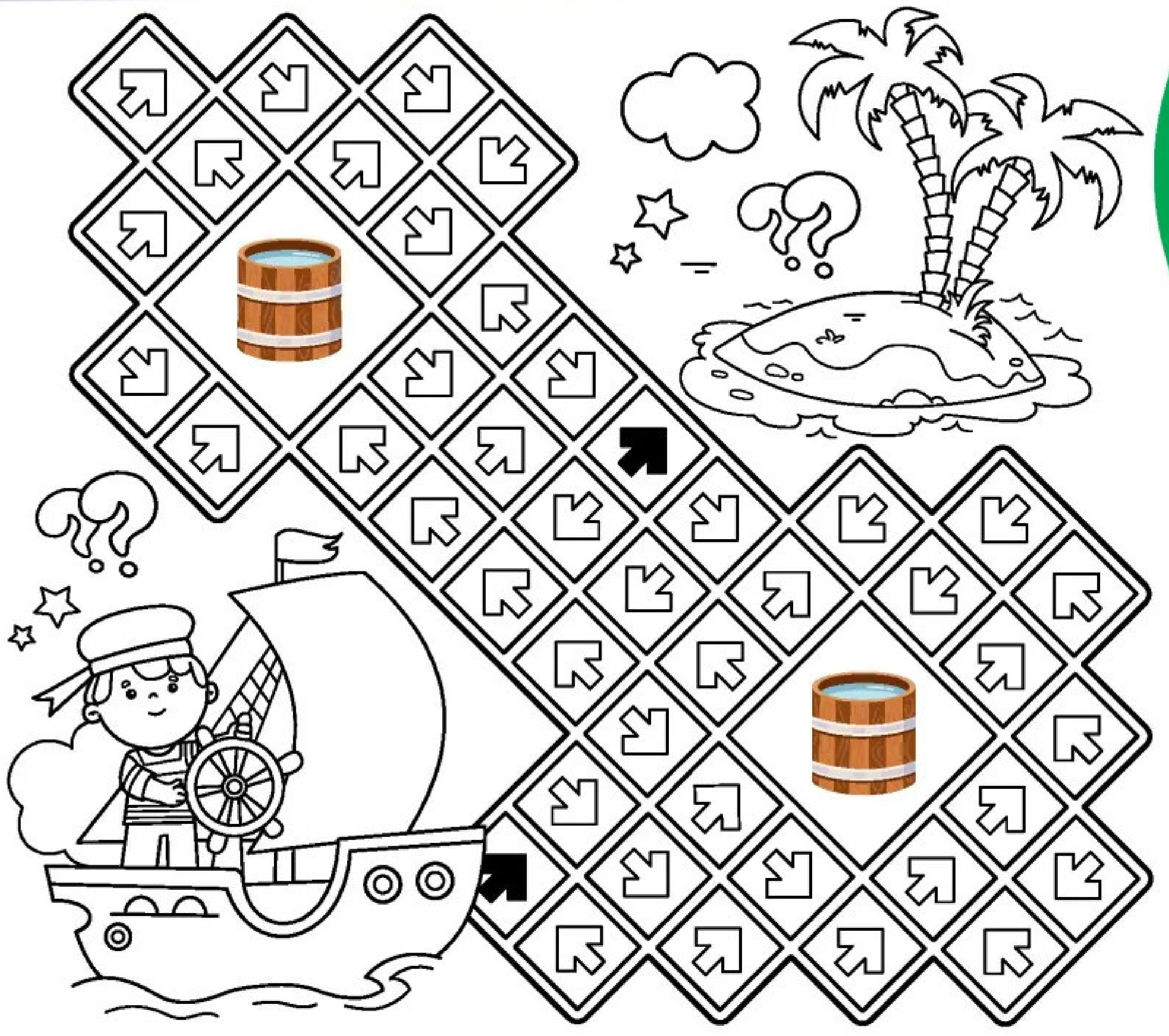
1 OURGCAE ☐🟨☐☐☐🟨☐
2 SCPMAOS ☐🟨🟨🟨☐☐☐
3 SIYDCVEOR 🟨☐☐☐🟨☐☐☐☐
4 ADNL 🟨🟨🟨☐
5 IAGNOTINAV 🟨☐☐🟨🟨☐☐🟨☐🟨
6 EPRENISO 🟨🟨☐☐☐☐☐☐
7 SATREERU 🟨☐☐🟨☐☐🟨☐
8 QTENCSUO ☐☐🟨☐☐☐🟨🟨

ANSWERS: 'Good planning is important'

WATER WAY TO TRAVEL!

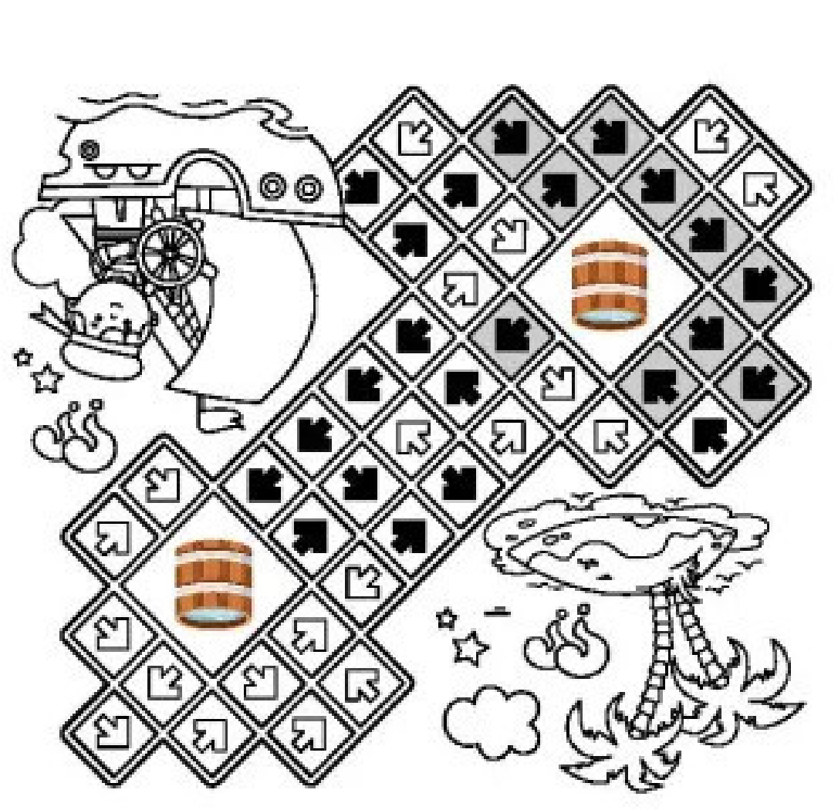
Humans can't drink seawater because it contains too much salt. If you do drink it, your kidneys will not be able to produce enough urine to flush the salt away. Instead, your body will try to use the water contained in your cells, which will cause you to dehydrate. Anyone drinking too much will become ill and die.

Help this explorer to discover a new island and, to ensure he gets there safely, collect the barrels of fresh water that have been helpfully placed along the way.



DID YOU KNOW?

As well as water, explorers travelling by sea would drink a gallon of low-alcohol beer each day!



ANSWERS:

TRUE OR FALSE?

How much do you know about explorers?

ALL EXPLORERS RETURNED FROM THEIR EXPEDITIONS

TRUE ☐ OR FALSE ☐

ALL EXPLORATION HAS TAKEN PLACE ON EARTH

TRUE ☐ OR FALSE ☐

MELBOURNE IN AUSTRALIA WAS FOUNDED BY BATMAN

TRUE ☐ OR FALSE ☐

CAPTAIN JAMES COOK DISCOVERED AN ISLAND THAT DIDN'T EXIST

TRUE ☐ OR FALSE ☐

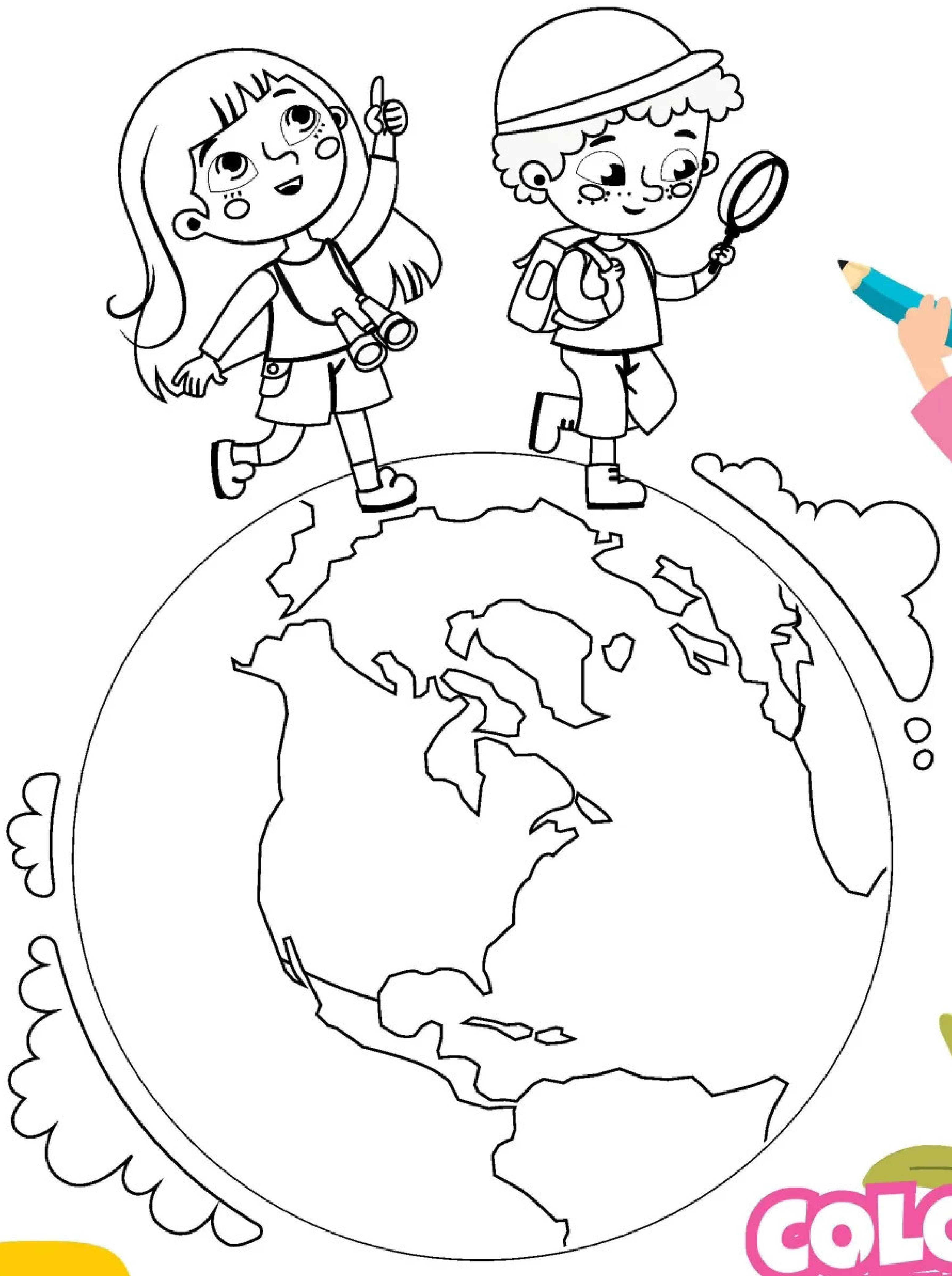
ARCTIC EXPLORER PETER FREUCHEN CREATED A CHISEL OUT OF HIS OWN POO

TRUE ☐ OR FALSE ☐

ANSWERS: False (explorers have become lost or died during their travels), False (space is also being explored), True (it was founded by John Batman), True (Sandy Island remained on maps until 2012 when it was discovered it wasn't actually there!), True (he did indeed!)

EXPLORING THE WORLD!

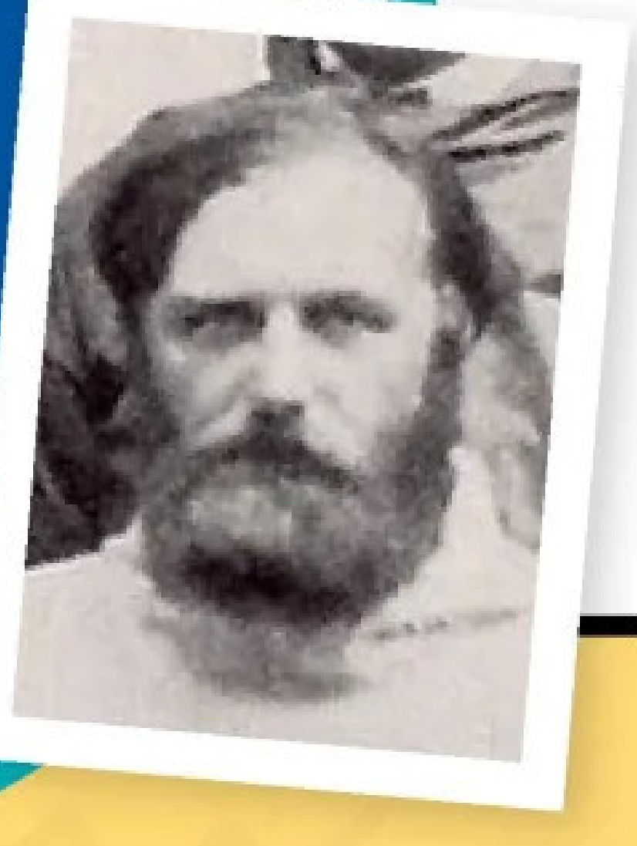
Add a bit of detail to this drawing by colouring in this pair of intrepid explorers!



COLOUR ME IN!

DID YOU KNOW?

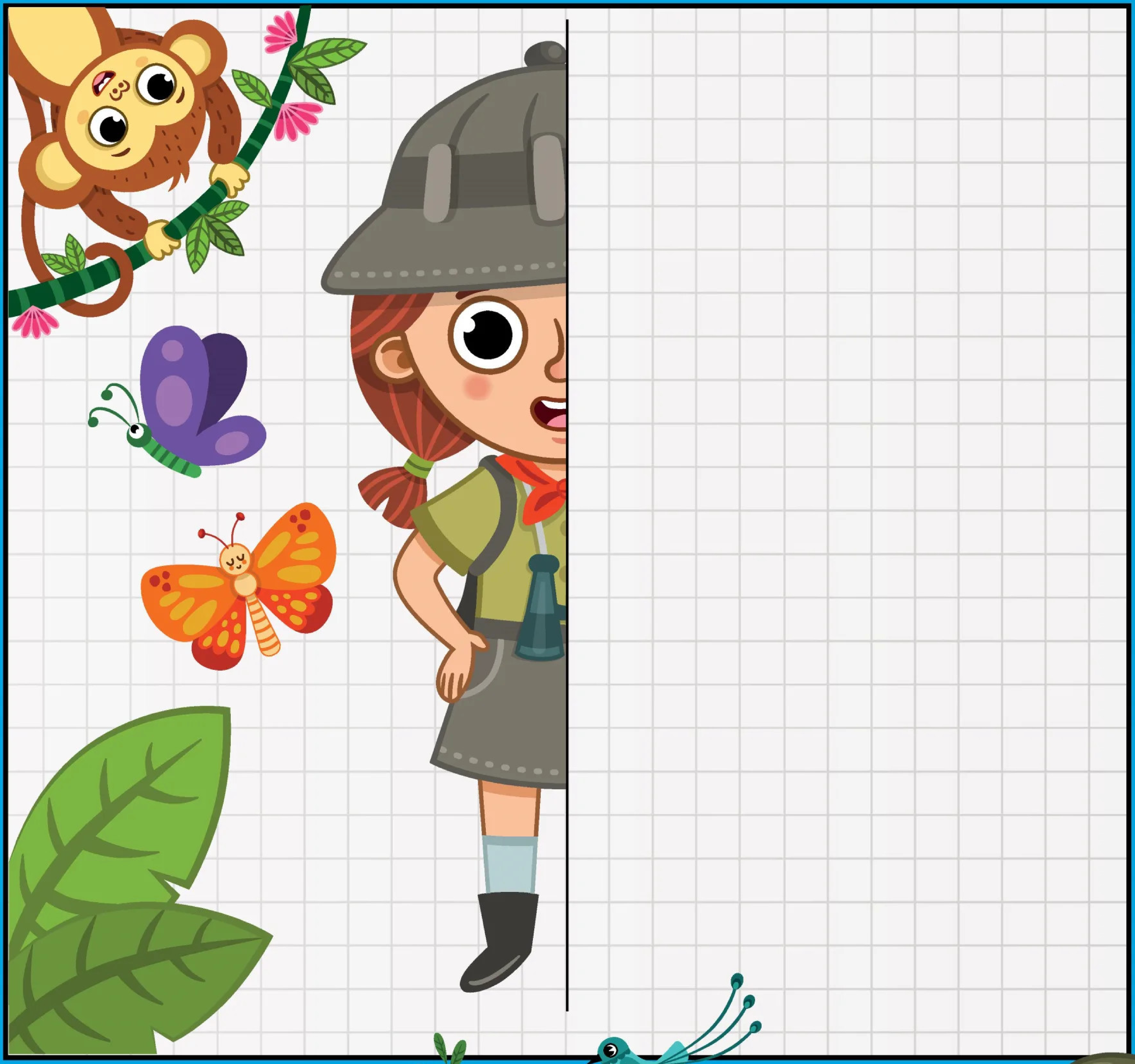
This explorer did a lot of things during his life, such as living among the Inuit people in the Arctic, fighting the Nazis, winning $64,000 on a TV game show and replacing his frostbitten leg with a wooden one!



DRAW A PICTURE OF FREUCHEN

DRAW ME!

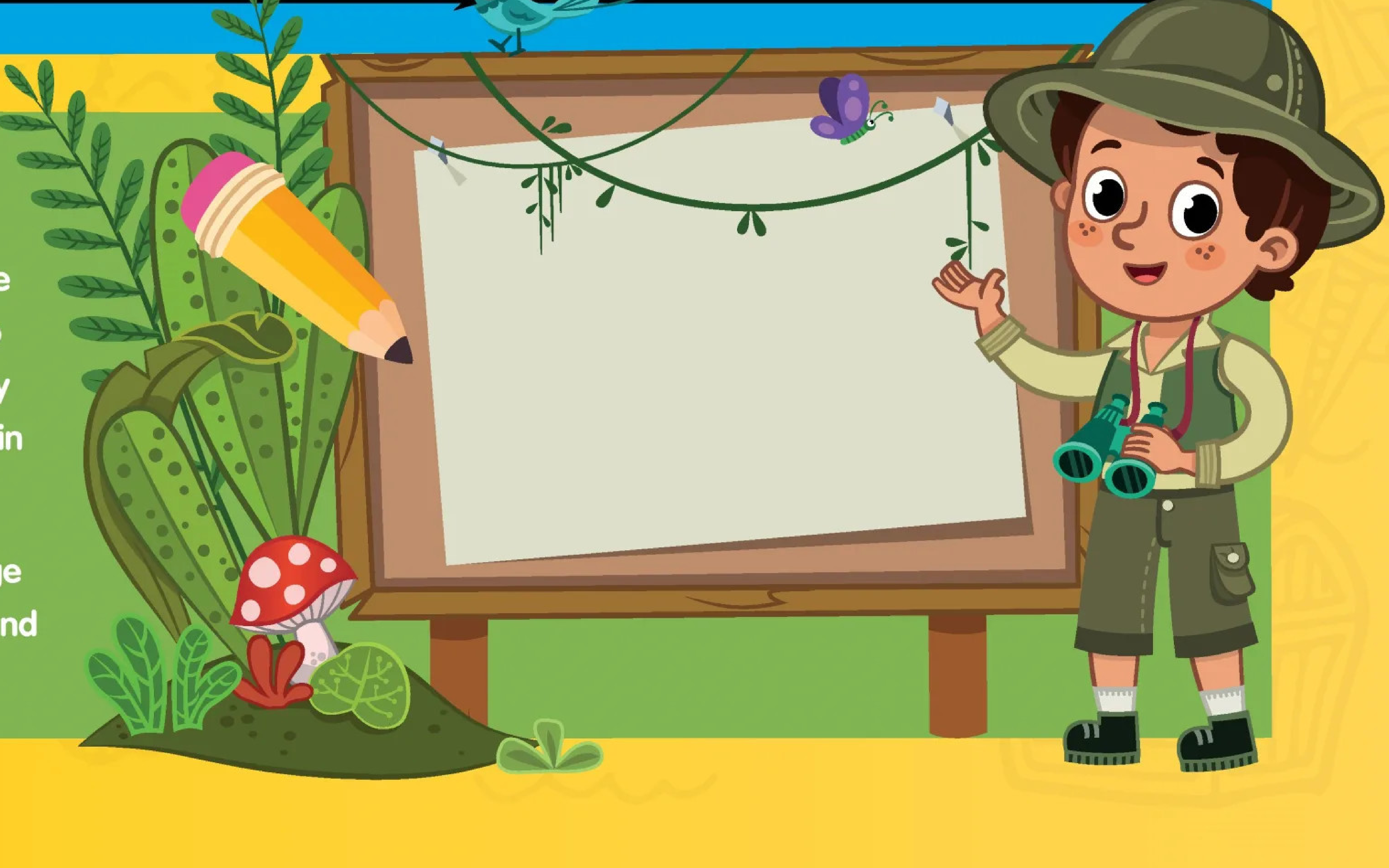
CAN YOU USE THE GRID TO COMPLETE THE EXPLORER?



JUNGLE JAUNTS!

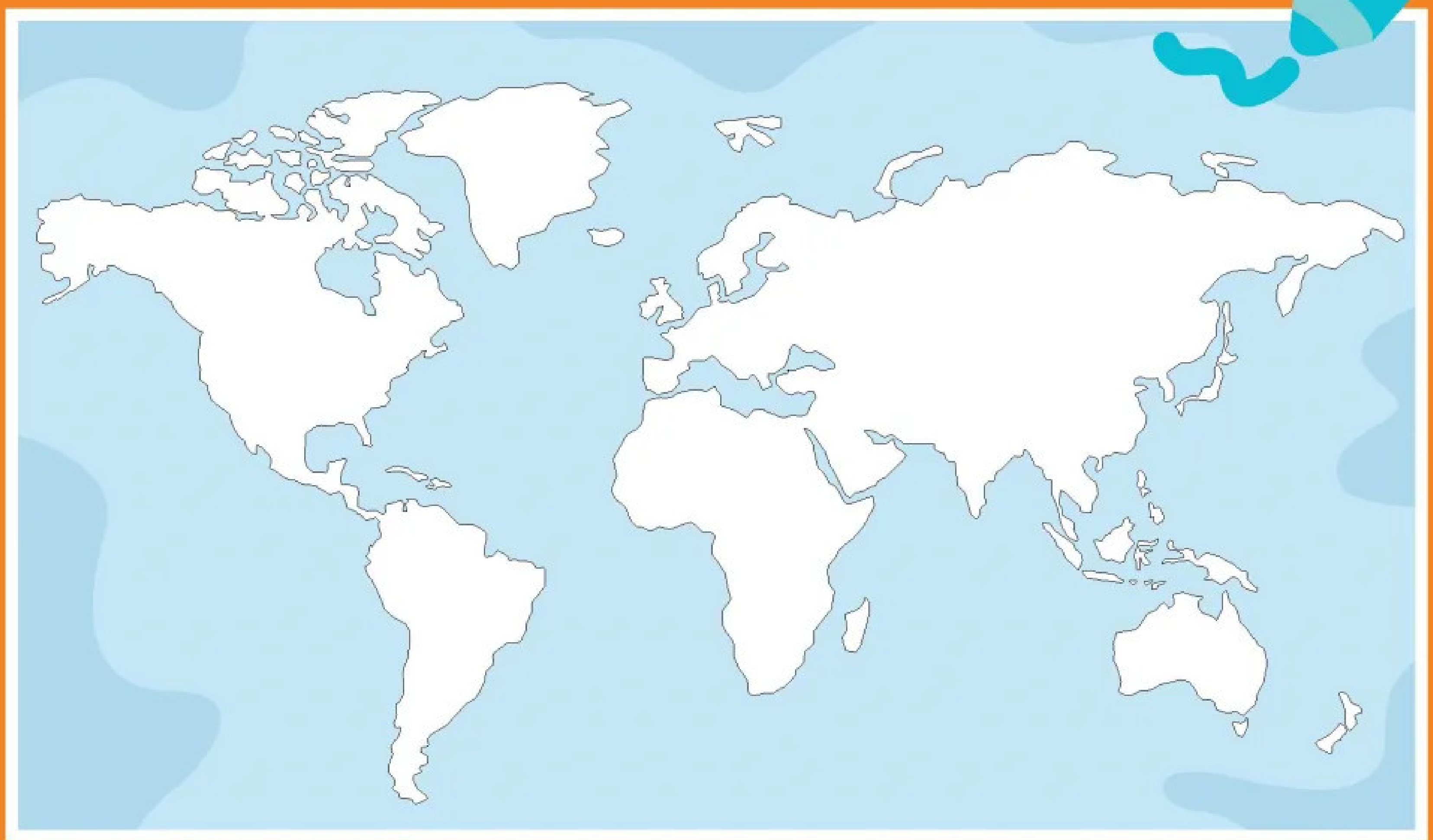
Here is an explorer in the jungle. Use the board to draw what one discovery you think you may make in a jungle.

Wait until you see on page 72 what Henri Mouhot found in the jungle!



DISCOVER THE CONTINENTS

The world is split into different continents – seven large, continuous landmasses. From largest to smallest, they are: Asia, Africa, North America, South America, Antarctica, Europe and Australia.



Here is a key. Can you use it to colour the correct continents on this world map?

RED: Asia
YELLOW: Africa
GREEN: North America
DARK GREEN: South America
DARK BLUE: Antarctica
BLUE: Europe
PURPLE: Australia

Which continent do you live in? ____________________

WORD CHAIN

For each clue, think of a word that starts with the same letter as the last letter of the previous answer.

1. To make sense of the lands they discovered, what would explorers create?

2. What type of experiments would many explorers carry out?

3. What religion was spread by European explorers?

4. For how long could some explorers be away from home?

ANSWER: Maps, sientific, Christianity, years

WHAT TYPE OF EXPLORER ARE YOU?

WHAT DO YOU ENJOY DOING THE MOST?

A. Making money
B. Carrying out experiments
C. Finding new objects
D. Exploring the world around you

IF YOU TRAVELLED TO A DESERT ISLAND, WHAT WOULD EXCITE YOU THE MOST?

A. Discovering pots of a new kind of spice
B. Seeing water flowing uphill instead of down
C. Coming across a treasure chest
D. Being able to go wherever you want

YOU FIND YOURSELF IN SPACE AND COME ACROSS AN ALIEN. WOULD YOU:

A. See if they wanted to buy anything from you
B. Ask them questions about their homeland
C. Check if they had interesting items to show
D. Ask them if you could visit their home

IF YOU GO DEEP SEA DIVING, WHAT WOULD YOU LIKE TO FIND UNDERWATER?

A. A submarine full of people
B. A gush of unusual purple water
C. A bag of gold
D. A lost city

MOSTLY A: YOU'RE A TRADER

Your main motivation for exploring the world is to see if you can find people who have items you can sell and people who want the items you have come across.

MOSTLY B: YOU'RE A SCIENTIST

Your desire to learn is strong. You don't take things at face value. Instead, you see things and ask questions about them, approaching life with an open mind and wanting to discover more.

MOSTLY C: YOU'RE A TREASURE HUNTER

You love material goods and want to collect as many of them as possible – the shiner the better, and if you can get your hands on something unique, you'll be very interested.

MOSTLY D: YOU'RE AN ADVENTURER

You don't know what is around the corner – danger could be lurking. But you're courageous and want to enjoy the challenge of seeing what's out there. You want to see places.

© Getty Images

EXPLORING BY SEA

Time spent sailing across the world's oceans was tough, but also very rewarding. As well as coming across different foods and materials, explorers would discover parts of the world they never knew existed.

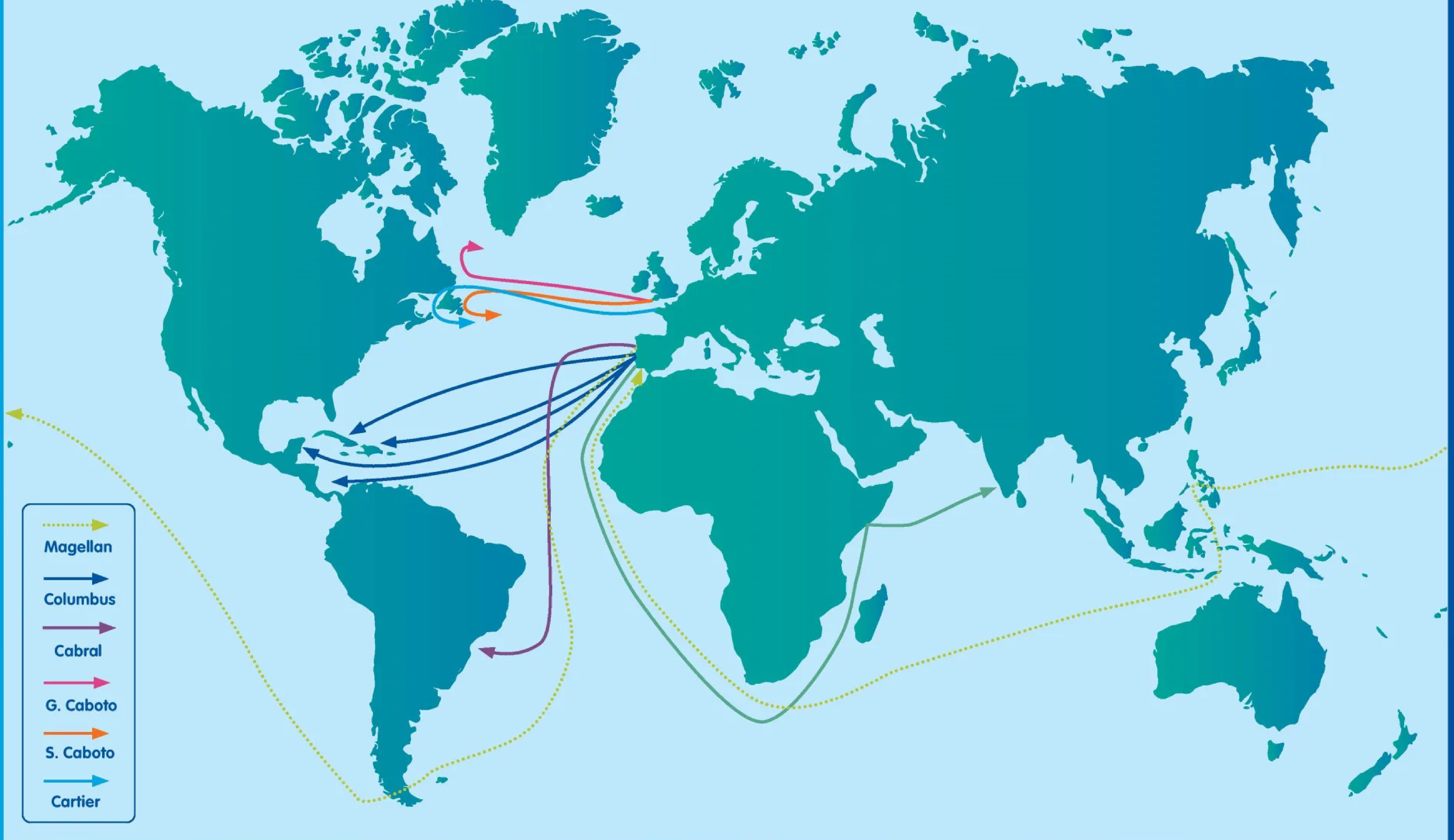
They would fill their ships with lots of treasures and open up trade routes. Explorers would also create the first accurate maps of the sea and many lands. Their discoveries would lead to new ideas spreading across the world, and they would embark on many adventures. In fact, numerous explorers risked their lives to find new things. Europeans in particular were very active between 1488 and the early 1600s. This period has become known as the Age of Exploration, and it led to the creation of new countries, such as the United States of America.

But why did people start exploring in the first place? The Portuguese had been looking for new trade routes to West Africa because the Ottoman Empire blocked important paths. The more land they discovered, the more they travelled to see what else they could find. The Spanish also explored and ended up ruling large parts of the Americas.

So let's take a look at some of the explorers who sailed the seas and shaped the world. As you journey across the next few pages, you will begin to discover for yourself the benefits they brought and the problems they may have caused!

WHERE DID THEY GO?

During the Age of Exploration, explorers mainly from Portugal and Spain (but also Britain and the Netherlands) sailed the oceans and discovered the West Indies, India, Brazil, Philippines, Australia, New Zealand, Hawaoo and islands near Antarctica. Explorers went for money, fame and adventure!



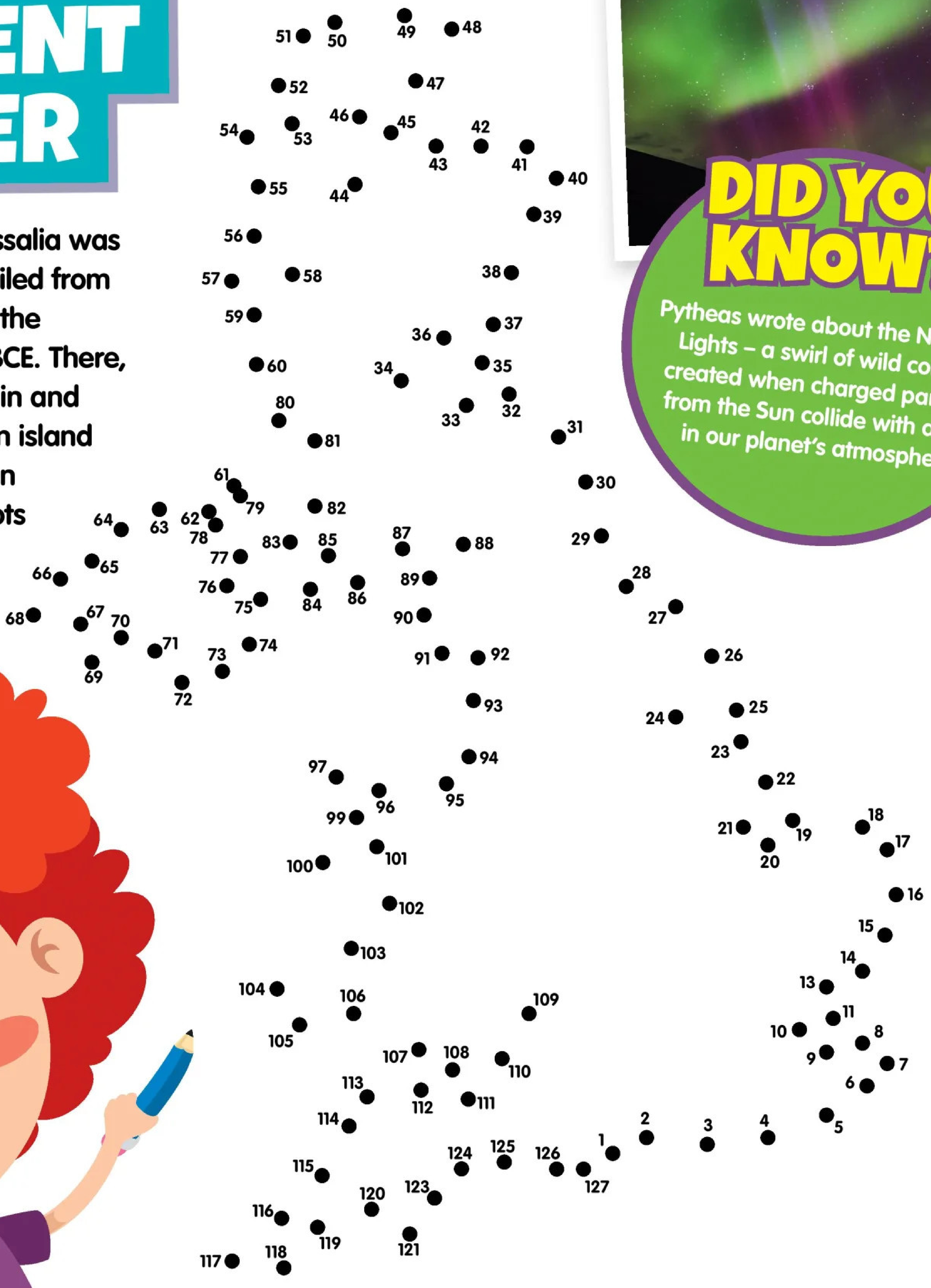
MEET THE EXPLORER WHO DIDN'T TRAVEL!

Henry the Navigator wasn't actually a navigator, and he wasn't a sailor, either! Instead, Henry – who didn't actually travel very far during his lifetime – paid for other people to explore the world. By sending explorers to check out the coast of west Africa, he is said to have started the Age of Exploration. He also set up a school of navigation in Portugal in 1419 to make sure they knew what they were doing!

THE ANCIENT EXPLORER

The Greek explorer Pytheas of Massalia was one of the earliest explorers. He sailed from the south of present-day France to the north-west of Europe around 330 BCE. There, he visited what is today Great Britain and Ireland, as well as the Arctic and an island called Thule (which could have been modern-day Iceland). Britain had lots of valuable tin!

Why not explore Britain's coast by joining the dots?



DID YOU KNOW?

Pytheas wrote about the Northern Lights – a swirl of wild colours created when charged particles from the Sun collide with atoms in our planet's atmosphere.

© Getty Images

CHRISTOPHER COLUMBUS

In the 15th century, traveling by land from Europe to Asia was not easy. Ottoman armies would try to stop Europeans making the journey, which meant it was hard to transport silks and spices back from India and China.

To avoid trouble, Portuguese sailors would travel by sea instead. They would steer their boats down the west coat of Africa, go around the Cape of Good Hope and travel across the Indian Ocean to reach their destination. After loading up, they would go back again.

Navigator Christopher Columbus had an idea. He believed it would be possible to sail to Asia by crossing the Atlantic Ocean instead. He told many rulers of his plan, and two of them – King Ferdinand and Queen Isabella of Spain – liked it so much that they struck a deal.

They told Columbus that he would be richly rewarded if he was successful, so on 3 August 1452, he and his crew set sail with three ships: Santa Maria, Pinta and Niña. They spent two months at sea and finally reached land. But it wasn't Asia; Columbus had arrived at an island in the Bahamas instead, and it was about 8,000 miles away!

Columbus explored the islands, establishing a settlement called La Navidad and a town called Isabella on the island of Hispaniola. He went back to Spain in 1453, then returned. This time, he enslaved many people who had originally lived on the islands.

In 1498, he made another trip to the area, which ended with his arrest and imprisonment due to complaints about his behaviour. Even so, he was cleared and travelled again in 1502. Columbus was able to explore the coasts of Central America and South America on these final two voyages.

Although Columbus wasn't a nice man, his trips were important. They were so successful that more and more Europeans began to follow the same route. This led to them exploring and taking over the American continents. The anniversary of his landing in 1492 is also celebrated every year in Spain and the Americas.

DID CHRISTOPHER COLUMBUS DISCOVER AMERICA?

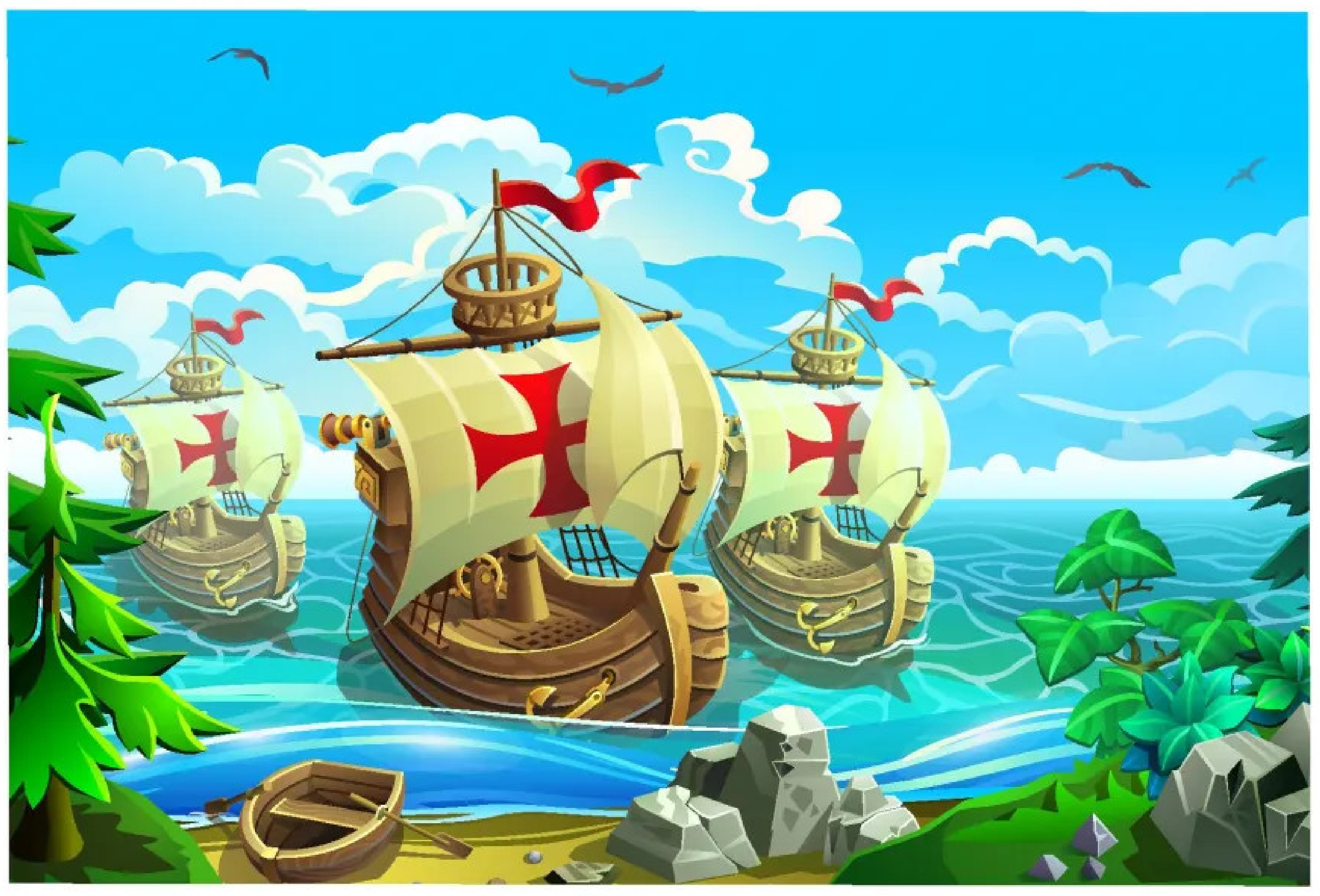
NO!

The Americas were already home to many people before Christopher Columbus and his crew arrived. Another European – a Norse Viking called Leif Erikson – is also believed to have set foot in North America about 500 years earlier! Columbus' achievement was to introduce the Americas to Europe. He never reached the United States.

THE CONQUISTADORS!

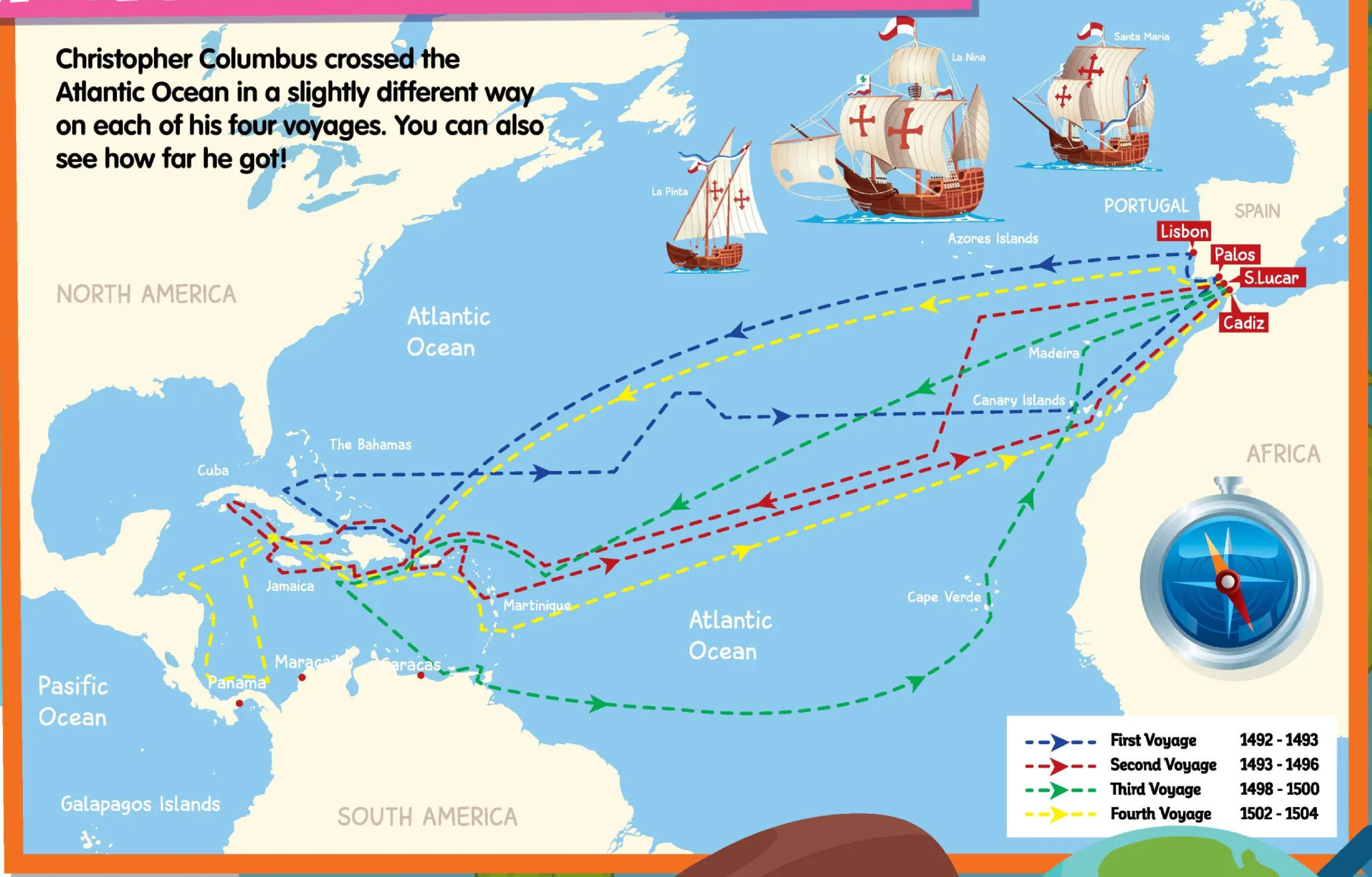
Columbus' adventures whet Spain and Portugal's appetite for exploration and the countries sought to conquer more parts of the Americas.

Conquistadors (explorer-soldiers) led the way. They killed many people they came across, seized control of land and goods and opened trade routes. Hernán Cortés was a conquistador whose expedition in the 16th century destroyed the rich and powerful Aztec Empire in Mexico.



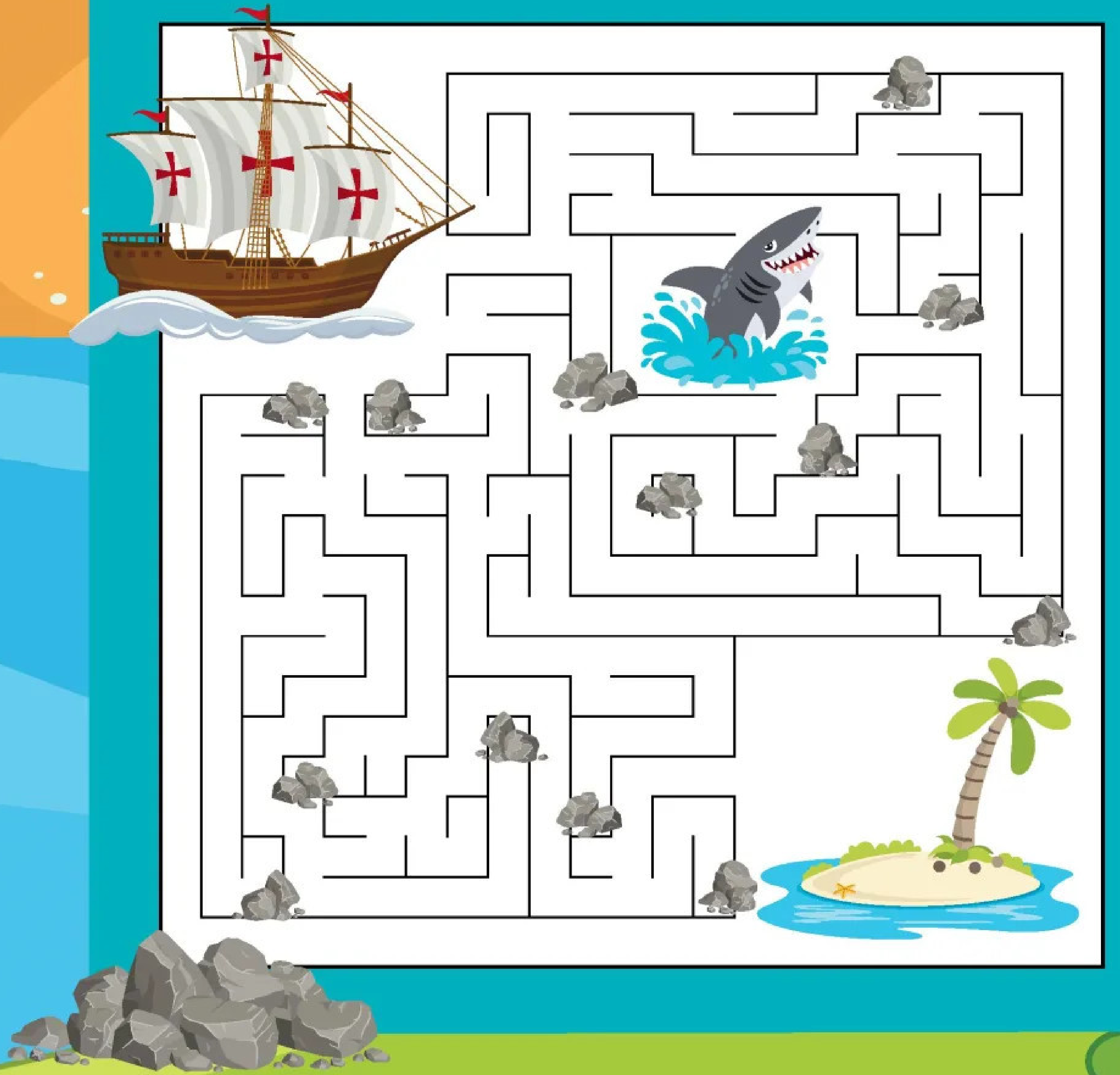
HOW DID COLUMBUS TRAVEL?

Christopher Columbus crossed the Atlantic Ocean in a slightly different way on each of his four voyages. You can also see how far he got!


La Nina
Santa Maria
La Pinta
PORTUGAL
SPAIN
Lisbon
Palos
S.Lucar
Cadiz
Azores Islands
NORTH AMERICA
Atlantic Ocean
Madeira
Canary Islands
The Bahamas
Cuba
AFRICA
Jamaica
Martinique
Cape Verde
Atlantic Ocean
Maracaibo
Caracas
Panama
Pasific Ocean
Galapagos Islands
SOUTH AMERICA
First Voyage 1492 - 1493
Second Voyage 1493 - 1496
Third Voyage 1498 - 1500
Fourth Voyage 1502 - 1504

HELP STEER SANTA MARIA

The Santa Maria ship was the largest of Columbus' three vessels. 18 metres in length, it had small cabins for the 50 or so sailors who would sleep on the floor, as well as a storage area for goods. It also weighed 200-600 tons. Despite its size, it hit a rock and was shipwrecked in 1492. Can you help Columbus steer away from trouble?



© Getty Images

JAMES COOK

British-born James Cook loved sailing. He became an apprentice for shipowners John and Henry Walker in July 1746 when he was 18 years old, and he made his first voyage a year later on board a merchant ship called Freelove.

In 1755, he decided to join the British Royal Navy aged 26, which is when his career reached new heights. He became a ship's master after just two years.

Cook loved cartography, which is the art, technology and science of making maps. His skill brought him to the attention of the Royal Society. He was asked to lead an expedition to observe the planet Venus as it transited across the Sun.

In 1768, he set sail with 100 men on a ship called HMS Endeavour. After visiting the island of Tahiti and completing his scientific work, he opened a set of secret instructions. They told him to continue sailing south. He was asked to find a huge mass of land that many believed was located in the southern part of Earth. They called it Terra Australis.

As he sailed, he came across what we now know is New Zealand in 1769. The country is split into two main landmasses, and Cook sailed around both, allowing him to accurately map the coastline. The following year, he landed on the east coast of Australia. This made him the first European to ever do so, and what he saw amazed him.

Many animals are only found in Australia and New Zealand, so Cook was shocked to see a kangaroo, which he said jumped like a hare. "It bears no resemblance to any European animal I ever saw," he wrote. He also made a note of many different plants, and took 250 specimens back to England.

The voyage took three years in total, but it was not Cook's last. He also explored the South Pacific and South Atlantic islands between 1772 and 1775, and returned to the South Pacific in 1776. The explorers got on really well with people who lived in Hawaii, but in 1779, a long boat went missing and Cook tried to kidnap a ruling chief in revenge. Cook ended up being killed.

BEATING SCURVY!

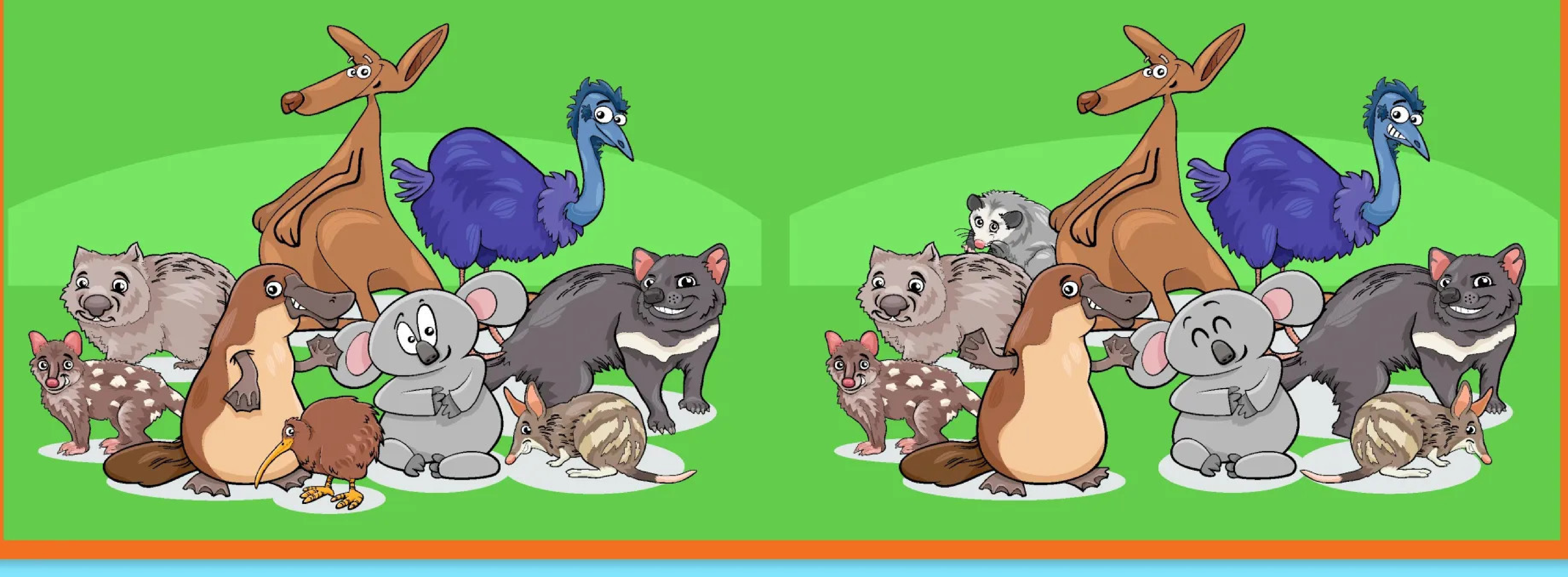
A lack of vitamin C can cause scurvy, and many sailors have suffered from this disease. It causes the body's tissue to break down and the nervous system to stop working. Joints can swell and teeth can fall out. Captain Cook supplied his men with fresh fruit whenever he could, as well as vinegar, mustard and fermented cabbage known as sauerkraut. His sailors hated sauerkraut, so Cook tricked them into eating it. He served it up to his officers and left the sailors out. The sailors then became jealous and wanted some for themselves!

PICKLED
SAUERKRAUT
350g

AUSTRALIAN ANIMALS

After Captain Cook wrote about his voyage, the kangaroo became a symbol of Australia. Other discoveries were also made. Naturalists Joseph Banks and Daniel Solander were on board HMS Endeavour, and it was their job to collect and study plant specimens and examine animals and insects. Artists helped to keep a record. Here are some animals that can be found in Australia.

Can you identify them and find six differences?



ARE WE NEARLY THERE YET?

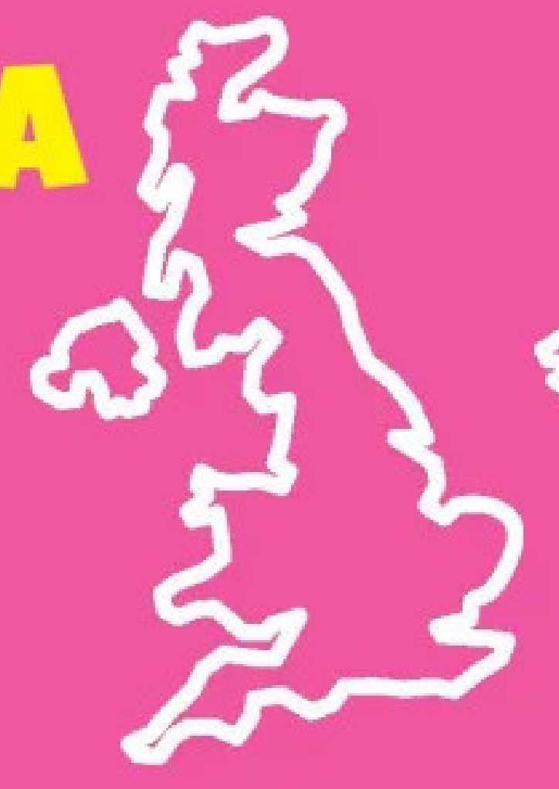
After travelling south from Britain and west across the Pacific Ocean for more than 20 months, Captain James Cook circled New Zealand and sailed along 3,200 kilometres (200 miles) of Australia's eastern coast before heading back. He discovered the Great Barrier Reef in the most dramatic of ways: by crashing his ship into it. It nearly sank.

The Great Barrier Reef is a beautiful part of Australia. It is full of amazing marine life and more than 3,000 reef systems.

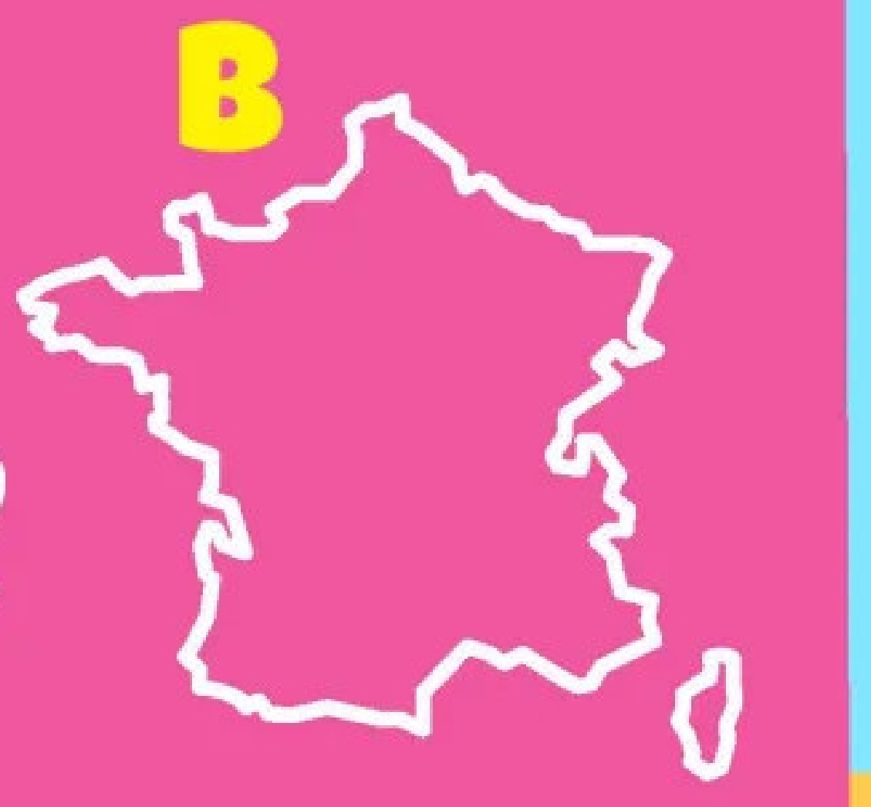
CREATE A MAP

James Cook was a brilliant map maker. Can you tell which countries these are from by examining their shapes?

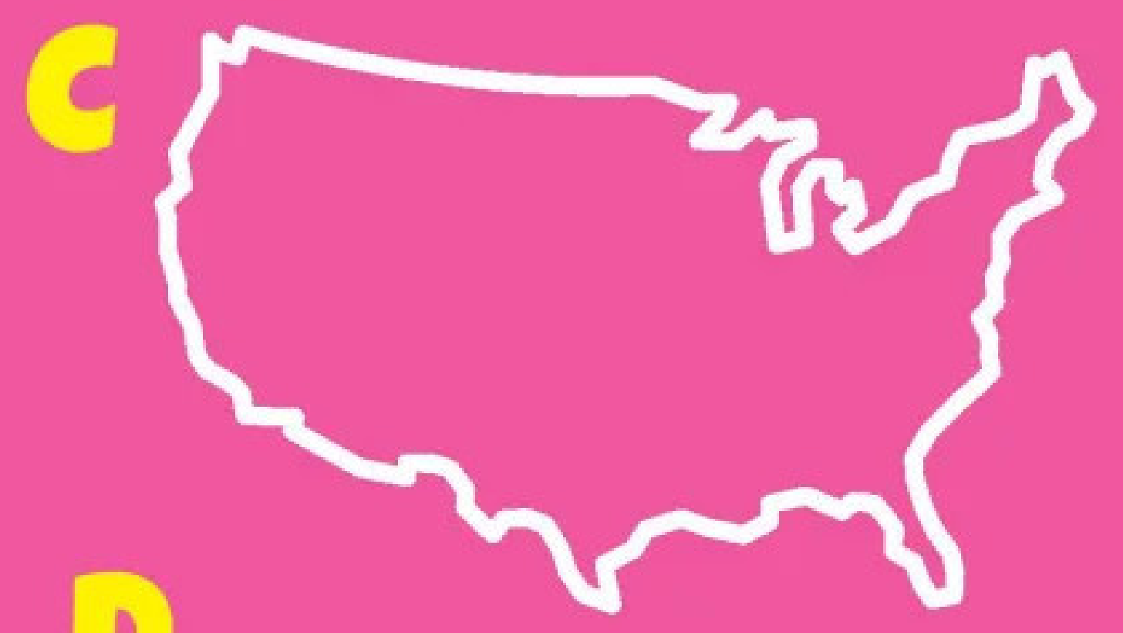
A



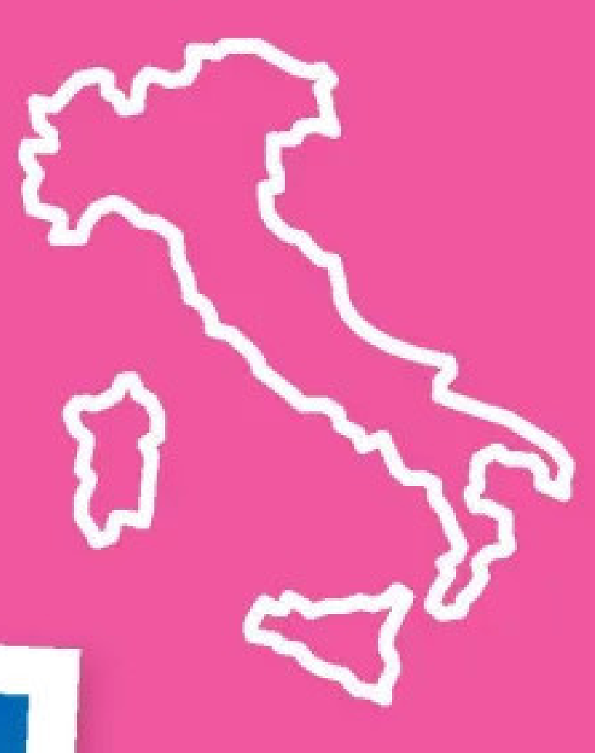
B



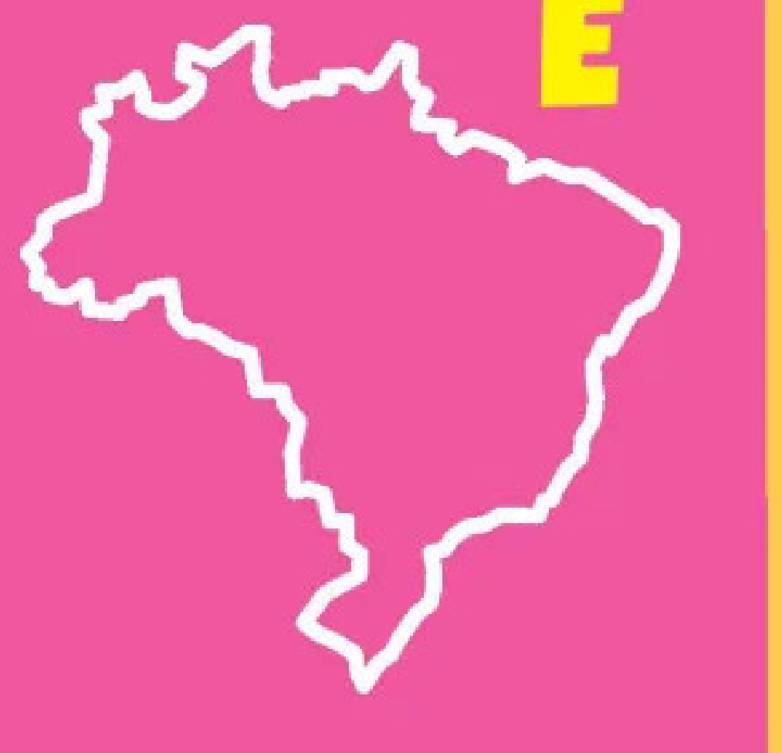
C



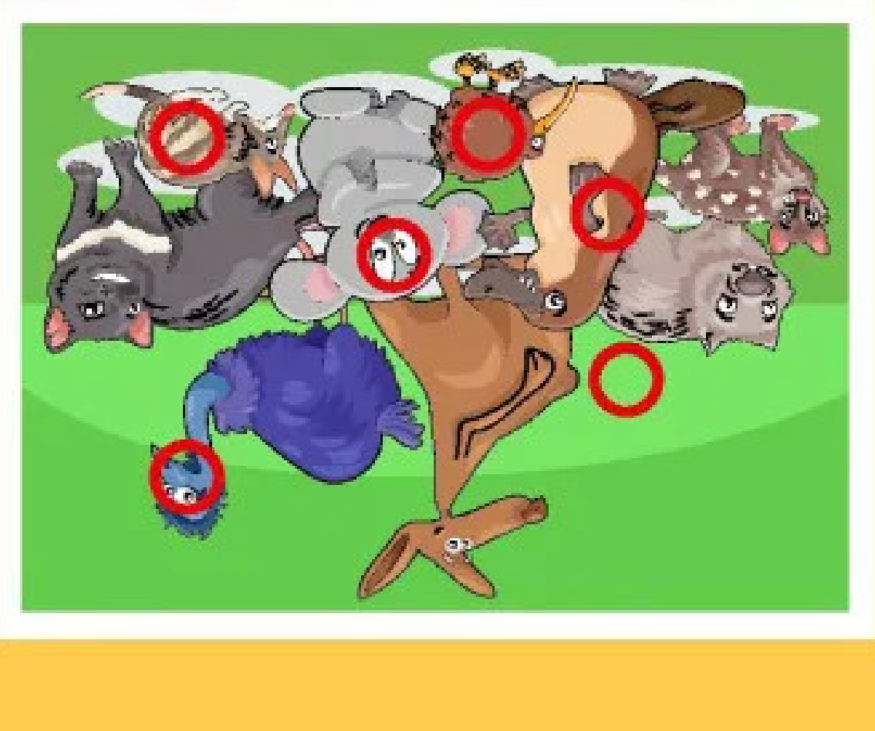
D



E



ANSWERS: A: United Kingdom, B: France, C: USA, D: Italy, E: Brazil



FRANCIS DRAKE

Some people used to believe that Francis Drake had superpowers. Spanish sailors would say that the English explorer had a magic mirror that let him see where other ships were located. They also said that he was friends with the devil.

These rumours were not true, but they spread because Spanish people were scared of Drake. As well as being one of the first British slave traders, Drake acted like a pirate. He raided Spanish ships and ports, stole lots of treasure and became very rich. His expeditions were backed by Queen Elizabeth, too, so he felt he could do as he wished.

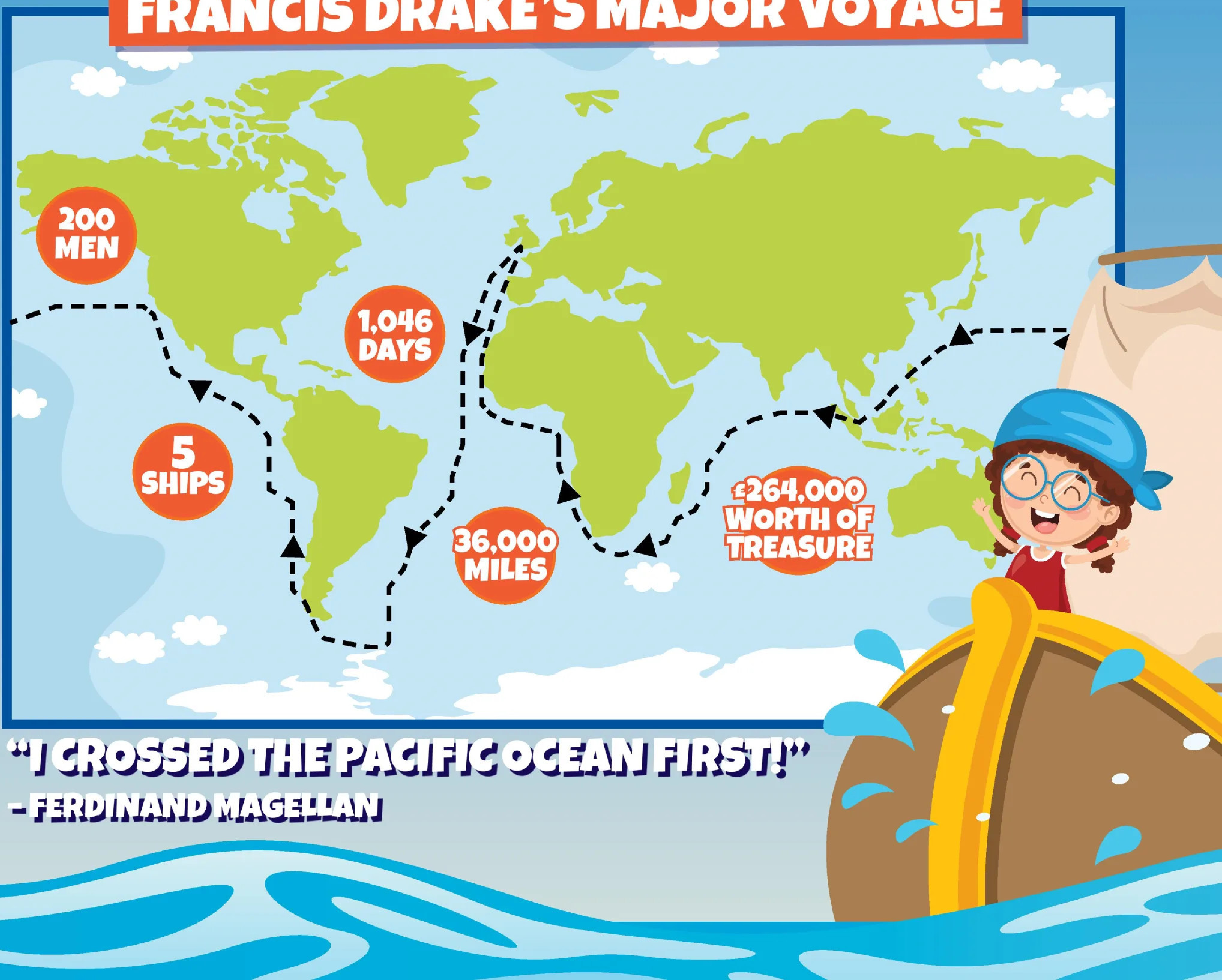
Yet he also achieved some great things. In 1577, he sailed his ship, the Golden Hind, down from England to the eastern coast of South America. He then headed up the western coast (where he plundered Spanish ports). By 1579, he found himself at the Canadian border, but he sailed back and anchored at Point Reyes, near where San Francisco is today.

While his boat was being fixed for the onward journey, Drake spent time speaking to local people and seeing what was around the area. He called the region New Albion, and claimed it now belonged to Queen Elizabeth. To mark this, he is believed to have nailed a brass plate to a tree.

After setting sail again, Drake headed west across the Pacific Ocean. The journey took him through the East Indies, across the Indian Ocean, up the west coast of Africa back to Europe and England. Over the three years he was out at sea, he became the first Englishman (and only the second explorer) to sail all the way around the world.

But it was not an easy voyage. Drake had set off with five ships, but only the Golden Hind made it back, doing so in September 1580. He died in 1596 after sailing to the West Indies to steal Spanish treasure. Fierce fighting had broken out and Drake became ill with dysentery, an infection of the intestines. His body was never found.

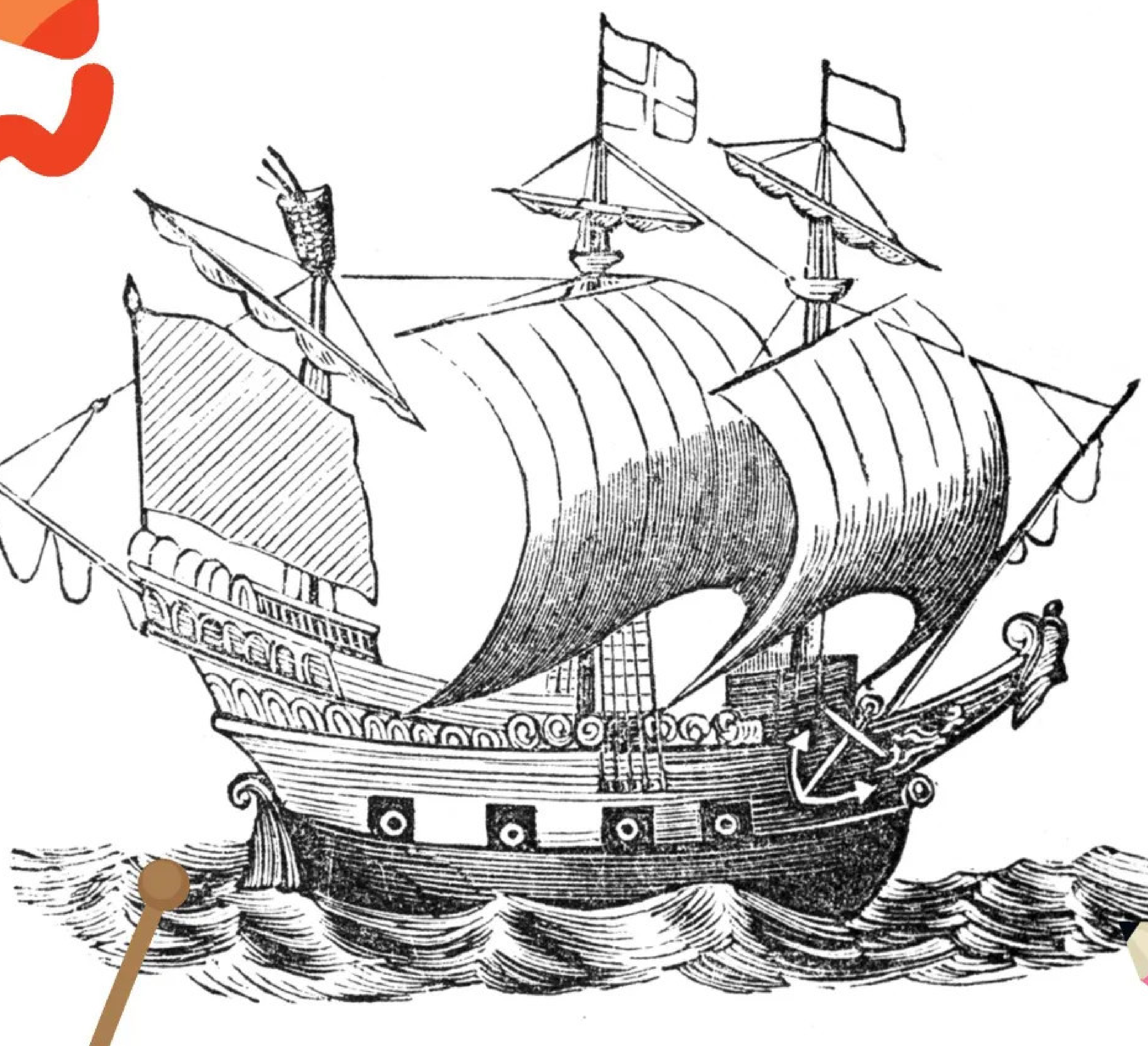
FRANCIS DRAKE'S MAJOR VOYAGE



"I CROSSED THE PACIFIC OCEAN FIRST!"
– FERDINAND MAGELLAN

THE GOLDEN HIND

Drake sailed on the Golden Hind, a 120-ton warship built low so that it could move quickly. When the ship arrived back in England, it was put on public display in Drake's honour. Queen Elizabeth also knighted Drake on the ship in 1580.



CAN YOU COLOUR IN AND BRING THE GOLDEN HIND TO LIFE?

DRAKE THE SLAVE TRADER

Like many European mariners at the time, Francis Drake was a slave trader. As the second cousin of John Hawkins, who is said to have begun the English slave trade, he would raid Spanish and Portuguese ships and steal slaves from his rivals. He would also lead brutal raids on villages and towns across West Africa and take people from their homes. Slaves were sold in the Americas, where they were forced to work on plantations in horrible conditions.

DID YOU KNOW?

You can see a replica of the Golden Hind in St Mary Overie Dock in London.

CRACK THE CODE!

In 1579, Drake seized the Spanish ship, Nuestra Señora de la Concepción. It included 12 chests full of coins. Here is a chest that can only be opened if you can crack the code. Each line and square can contain the numbers 1 to 4. You can only use each number once in each row, column and grid. The code is made up of the numbers in the yellow boxes.

1		4	2
2	4	3	
3	2		4
	1	2	3

UNLOCK CODE BELOW

DID YOU KNOW?

Drake was second-in-command when England defeated the Spanish Armada in 1588. A year earlier, he struck first with a raid on the Spanish port of Cádiz.

ANSWERS: 3, 1, 1, 4.

ROALD AMUNDSEN

Norwegian explorer Roald Amundsen set himself a challenge: he wanted to become the first person to reach the South Pole. Since it's located in Antarctica, where the lowest recorded temperature is -89.6 Celsius, he always knew it would be tough. But what made his journey even more challenging was an equally determined competitor: Robert Falcon Scott wanted to reach the South Pole too.

The race was on. As soon as Amundsen heard about Scott's ambition, he brought his plans forward. He also knew what to expect, because he'd been on an expedition to the Arctic between 1897 and 1899. Setting out with four teammates, they promptly set sail on a ship called Fram on 19 October 1911. The team also took four sledges and 52 husky dogs with them, which would prove crucial.

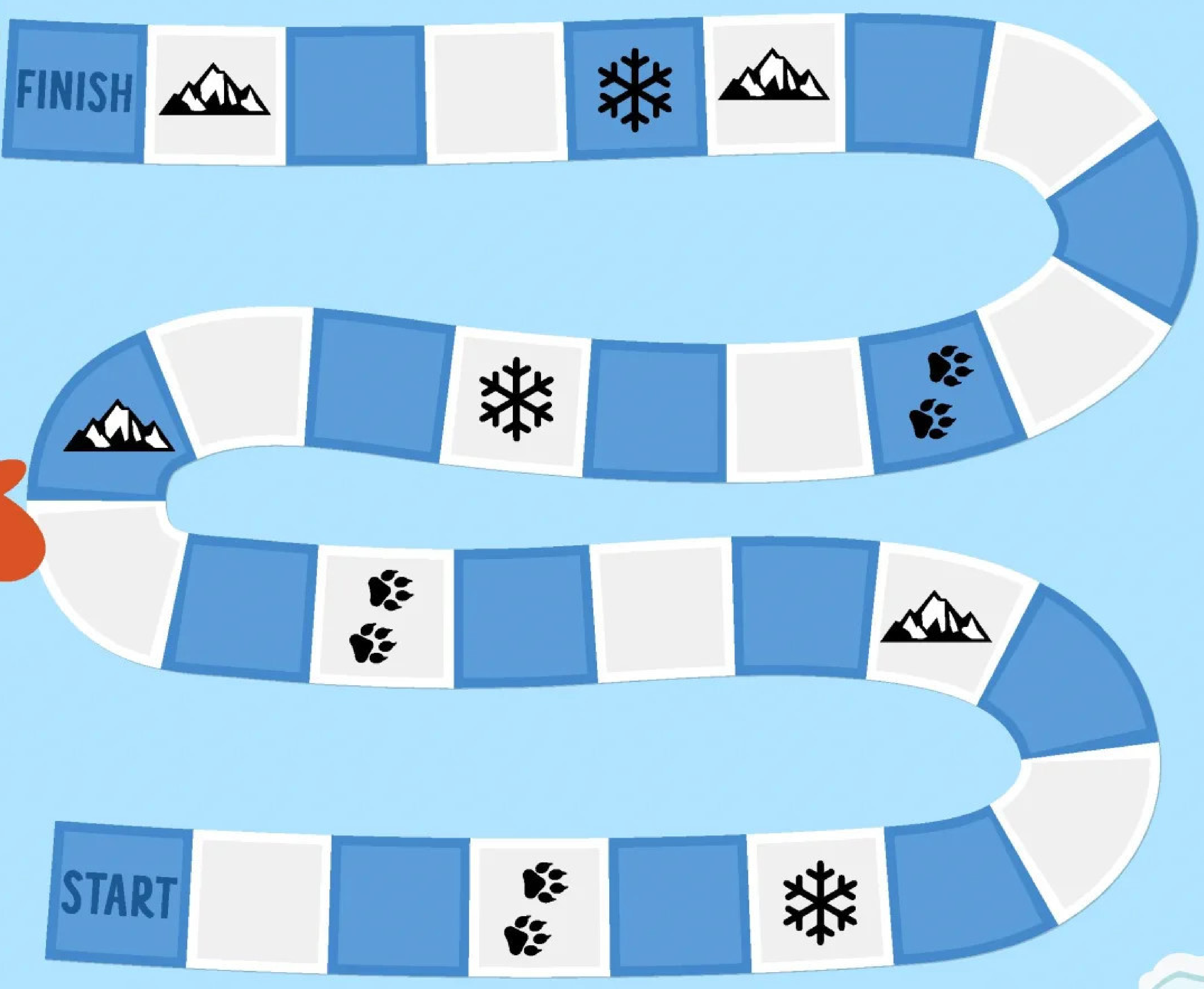
Scott, on the other hand, didn't set off for a few more days, but he was also confident of success. Scott was a British Royal Navy officer and an experienced explorer who had led the scientific British Discovery Expedition to the Antarctic between 1901 and 1903. He decided to take a much larger crew of 65 men, and they sailed on the ship, Terra Nova. Scott also took along sleds that were going to be pulled by ponies, as well as some motor sledges.

On 14 December 1911, just over two months after setting off, Amundsen arrived at the South Pole. After recording scientific data, he left three days later. The huskies had helped him and his team make speedy progress, but where was Scott? Sadly, it took Scott and the five-man team selected for the final section of the journey another five weeks. They arrived on 17 January 1912.

Amundsen had won, becoming the first to reach the South Pole, and Scott was upset. Tragically, Scott and his team never made it home. The return journey was cold and difficult, and Scott, along with the teammates, died on 29 March 1912. He was still a hero, though. After all, both teams had taken on a massive challenge and achieved what they set out to do.

GET TO THE SOUTH POLE FIRST!

Grab a friend, a dice and two different coins (one for you and one for your rival) and see which one of you can reach the South Pole first!



KEY

🐾 Your husky dogs are gathering speed. Go forward two spaces.

⛰ You reach a mountain that is slowing your down. Go back a space.

❄ One of the crew gets frostbite and needs treatment. Miss a turn.

OTHER POLAR EXPLORERS

MATTHEW HENSON

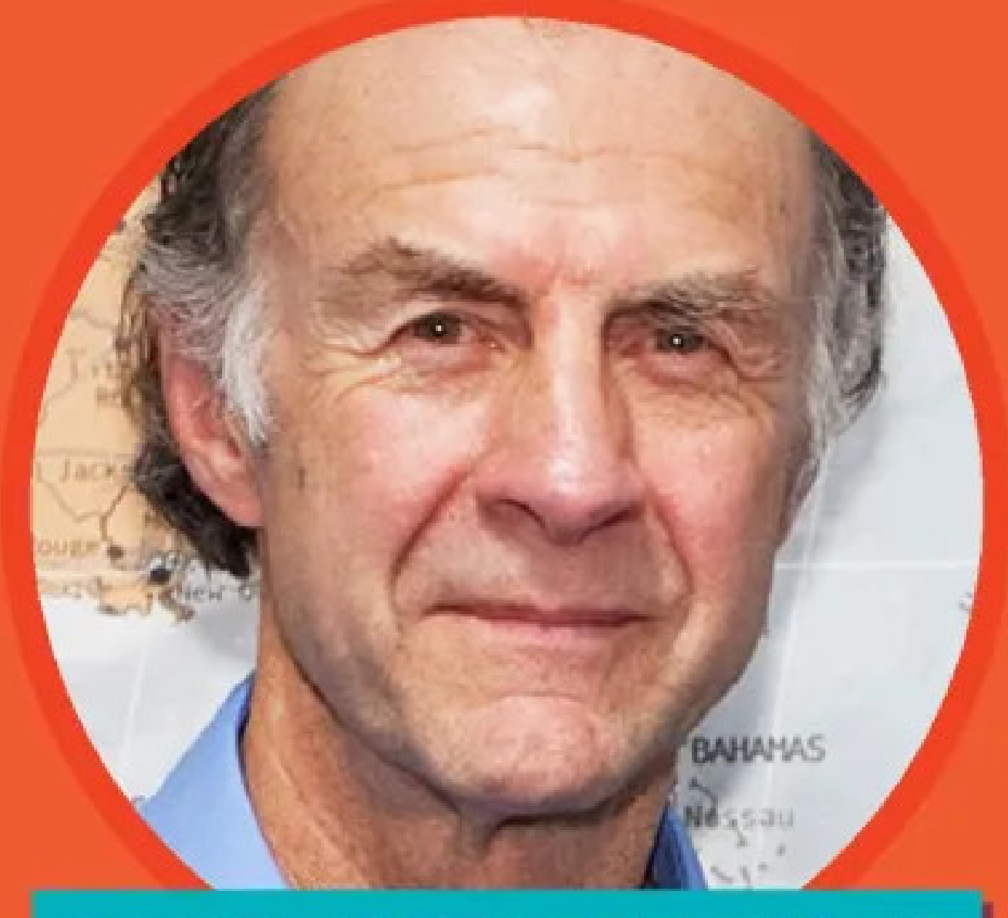
Henson was an African-American explorer who accompanied American explorer Robert Peary on expeditions to the Arctic. Henson became the first person to reach the North Pole on 6 April 1909, with Peary second.

ERNEST SHACKLETON

Shackleton wanted to be the first person to walk from one side of Antarctica to the other in 1914. He got as far as the continent's edge because the ship became stuck then sank, but it was still a cool adventure.

BARBARA HILLARY

Hillary was an American nurse who, after retiring, went dog-sledding in Quebec. She then wanted to become the first African American to reach the North Pole. She got there on 23 April 2007, aged 75.

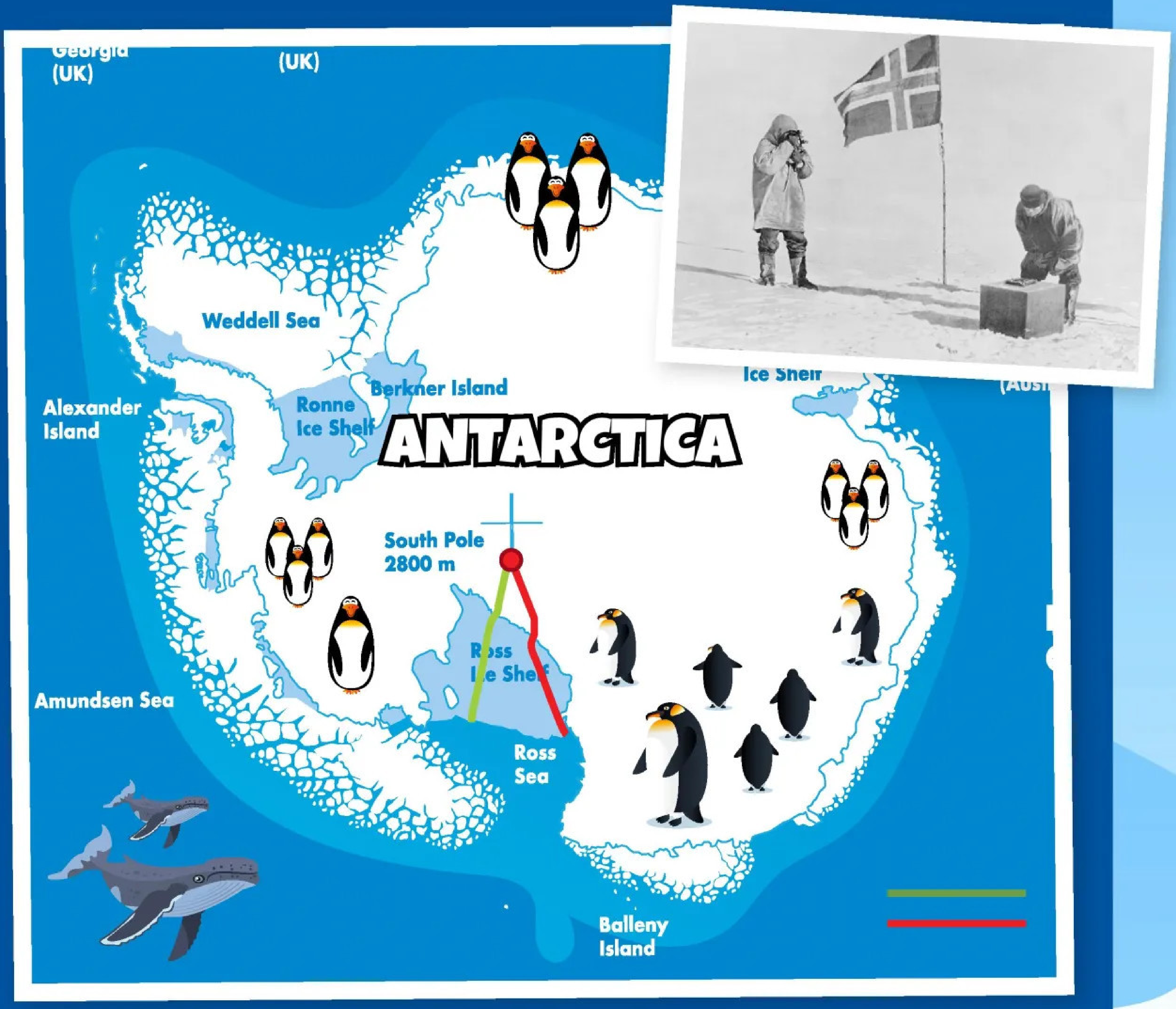


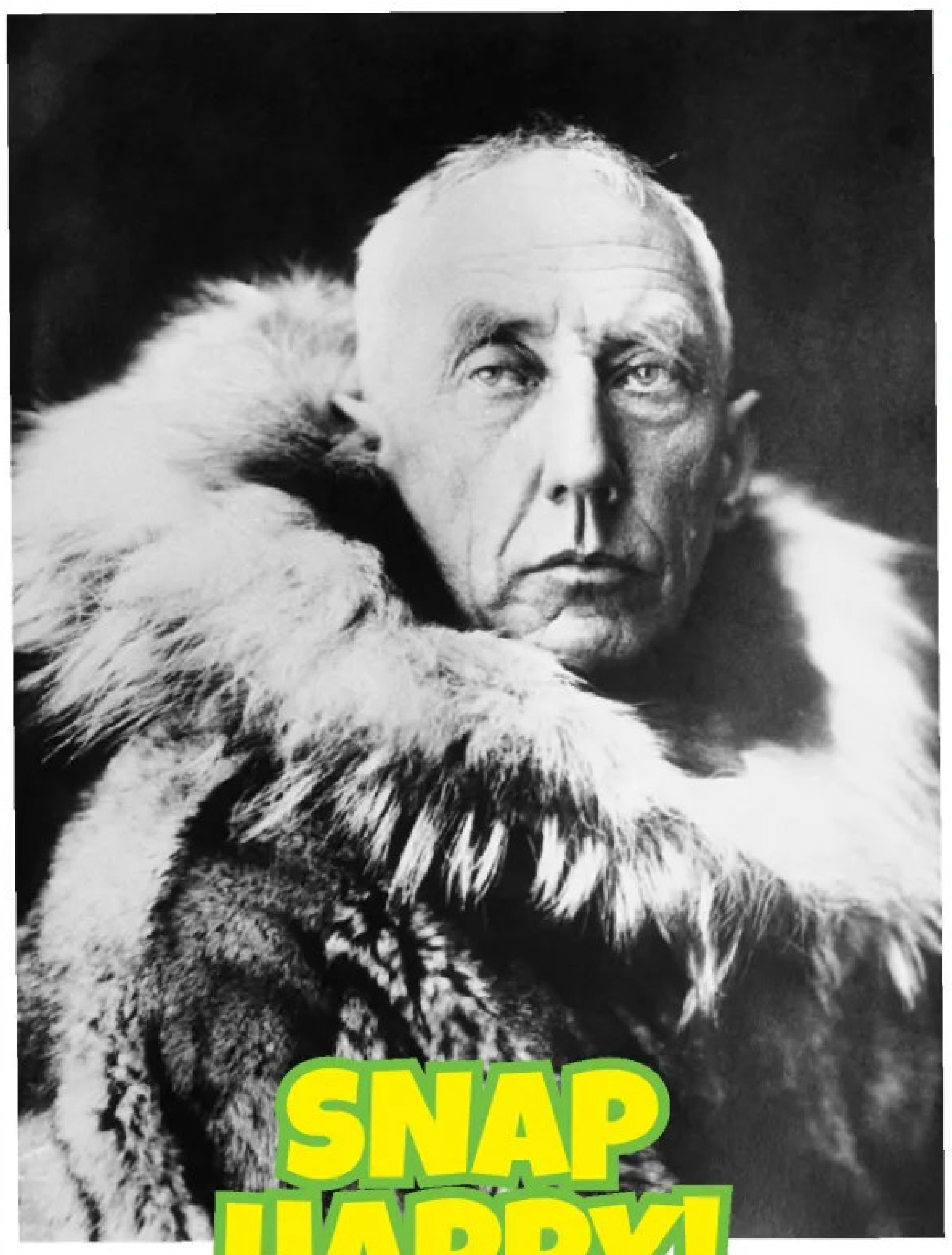
RANULPH FIENNES

In 1979, Fiennes, an expedition leader since the 1960s, attempted to travel vertically from pole to pole. He and his volunteer crew completed the journey on 29 August 1982. They played cricket at the South Pole.

REACHING THE SOUTH POLE

Here's how Roald Amundsen and Robert Falcon Scott made their way to the South Pole. The line in red is Scott's route, the line in green is the faster route taken by Amundsen, and the cross shows the South Pole itself!



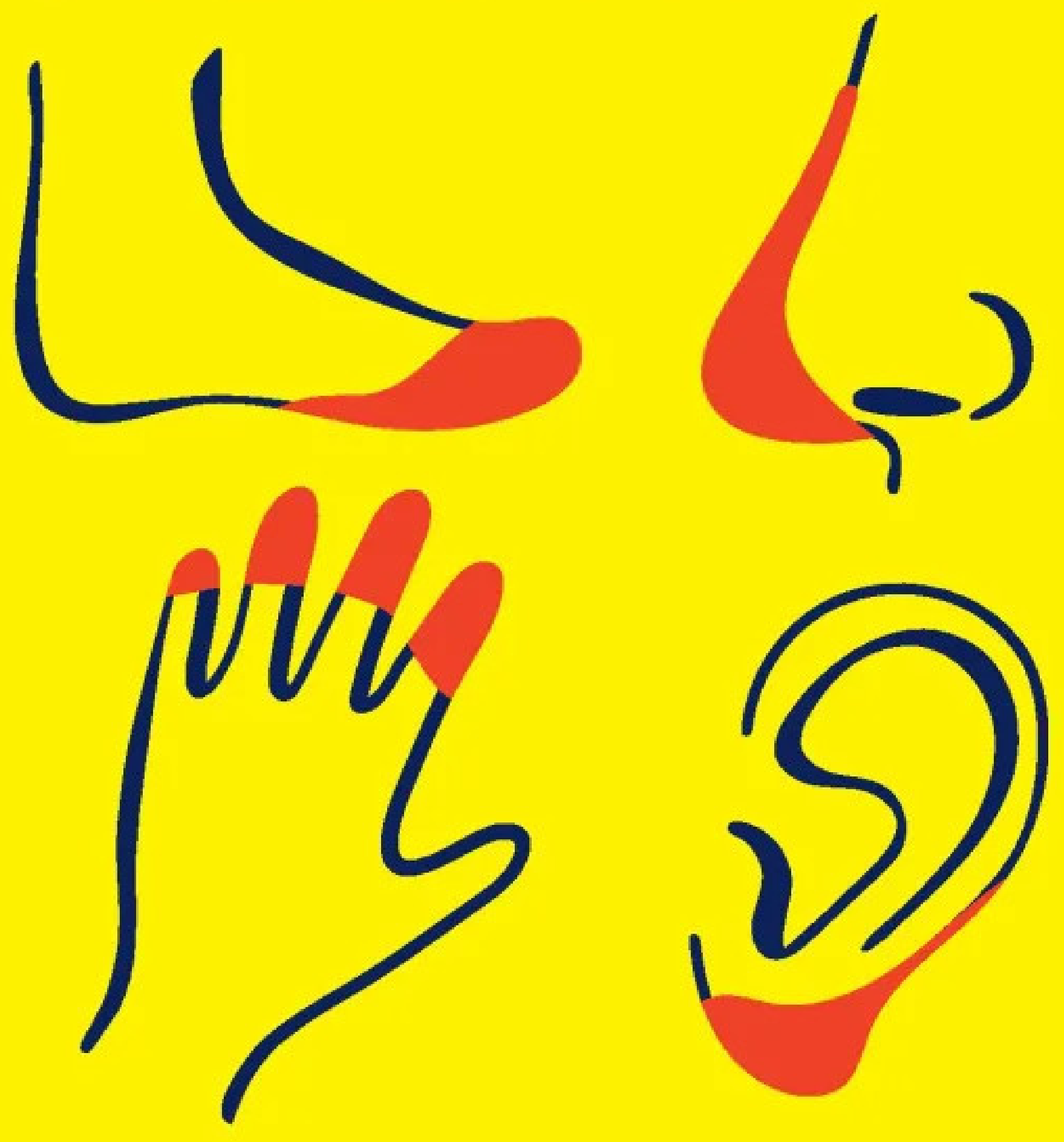


SNAP HAPPY!

ROALD AMUNDSEN REACHED THE SOUTH POLE ON 14 DECEMBER 1911!

DEALING WITH FROSTBITE

When your skin and tissue is exposed to freezing temperatures, it becomes damaged. This is referred to as frostbite. For explorers venturing to the Arctic and Antarctica, it's a very real and painful danger – frostbite can occur when the temperature drops below -0.55 Celsius (31 Fahrenheit). It tends to affect the fingers, toes, ears and nose.



END OF THE SEA

Wow! That was quite some journey, wasn't it? You learned that exploration allowed some European countries to grow larger by taking over land far, far away. You also saw how explorers made maps so that others could make the same journey, and how maps allowed people to understand how large the world is.

You discovered, too, that some explorers loved traveling so much, they would go on many sea trips during their lifetime. They enjoyed bringing back new things and loved the attention this brought them (lots of explorers became very rich and famous). When people heard about the amazing adventures the explorers had been on, it inspired them to set off and see the world as well. That's why the Age of Exploration was such a packed time.

But there were dark sides, too. As you found out, exploration often destroyed the lives of people who were already living in the areas that were being discovered. In many cases, they were killed or were forced to become slaves by those taking over their land. Explorers spread disease and caused some animals to become extinct. Many sailors died during their expeditions, too.

EARTHLY FACTS

- The radius of Earth at the equator is 6,378km (3,963 miles).
- The Earth's radius from pole to pole is 6,356km (3,950 miles).
- You would weigh less at Earth's equator than at one of the poles!
- Our planet spins at more than 1,000 miles per hour! Dizzy!
- Antarctica is the coldest place on Earth – temperatures can drop below -73C (-100F).

IS THE EARTH ROUND?

It may sound like a silly question – of course the Earth is round! – but for many centuries, people believed it was flat (some still do, but they're wrong!). The first recorded person to *discuss* the idea of a round Earth was Greek philosopher Pythagoras in the 6th century BCE, but explorer Ferdinand Magellan was the first to prove it. He set sail with a crew in 1519 and found the link between the Atlantic and Pacific oceans.

QUICK QUIZ

WHY NOT TEST HOW MUCH YOU'VE LEARNED SO FAR?

HOW MANY TIMES DID CHRISTOPHER COLUMBUS CROSS THE ATLANTIC OCEAN?

A: 4
B: 40
C: 400
D: 4,000

HOW FAR AWAY WAS CHRISTOPHER COLUMBUS FROM HIS INTENDED DESTINATION?

A: 8 miles
B: 80 miles
C: 800 miles
D: 8,000 miles

WHAT DID THE SPANISH BELIEVE FRANCIS DRAKE HAD?

A: A lot of money
B: Super powers
C: A cool car
D: A big music collection

WHAT DID JAMES COOK LIKE MAKING?

A: Food
B: Books
C: Maps
D: A mess

WHAT DO ANTARCTIC AND ARCTIC EXPLORERS NEED TO AVOID?

A: Frostbite
B: Hitting their heads on a pole
C: Penguins
D: Snow monsters

ANSWERS: A, D, A, C, A.

© Getty Images

END OF CHAPTER:
PUZZLES

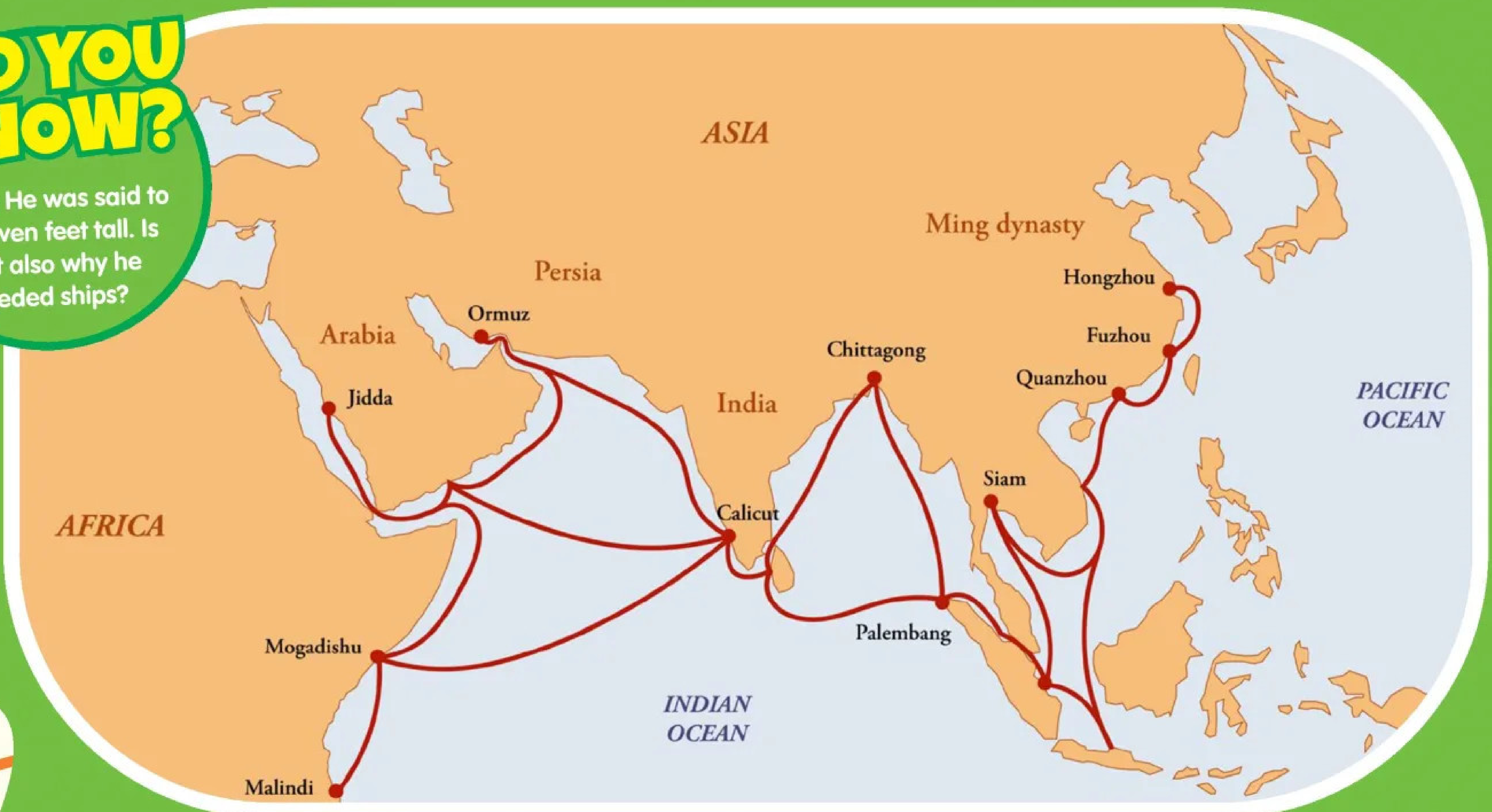
ARE YOU HAVING A GIRAFFE?

The Yongle Emperor of the Ming Dynasty built many enormous ships, and these formed what became known as the Treasure Fleet. Packed full of weapons and with lots of room for goodies, they were designed to show Chinese wealth and power.

The fleet was led by explorer Zheng He, who sailed to India and Africa many times between 1405 and 1433. It is said that the largest ship was about 230 feet (70 metres) in length – more than big enough to fit a giraffe which, as it happens, was one of the animals that was carried on He's ships back to China!

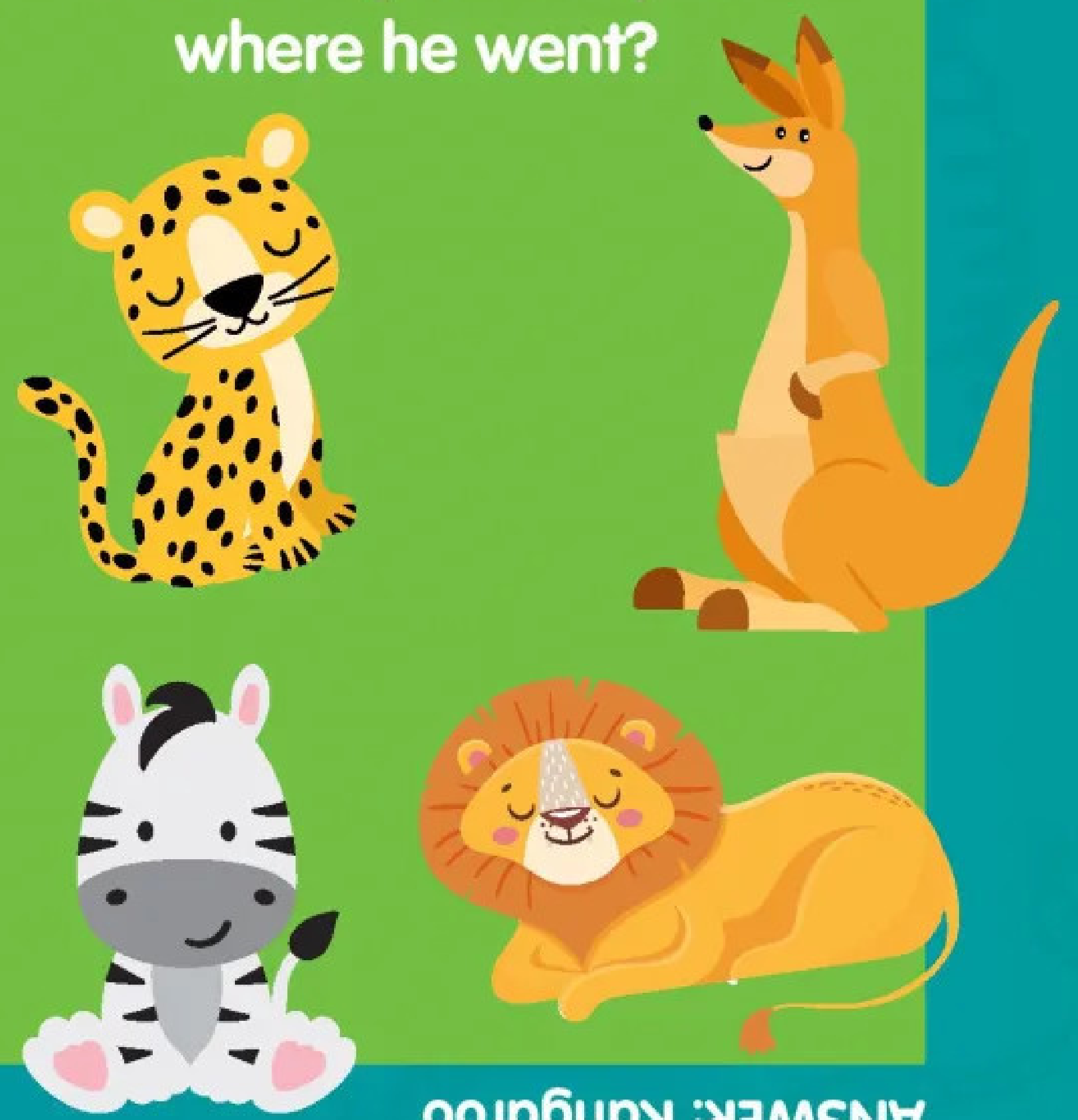
DID YOU KNOW?

Zheng He was said to be seven feet tall. Is that also why he needed ships?



ODD ONE OUT

Zheng He was also presented with other animals. Can you work out which is the odd one out by examining the map of where he went?



ANSWER: Kangaroo

EXPLORE A SHIPWRECK

Many ships have sunk into the ocean over the centuries, and some modern explorers spend lots of time taking a look around them. Among them is the film director James Cameron, who is obsessed with shipwrecks. He made the film, *Titanic*, about the ship, which sank on 15 April 1912. More than 1,500 people were killed on this ship, which now lies 12,600 feet underwater.

Ferdinand Magellan led the 1519 Spanish expedition to the East Indies with 270 men and five ships. These were the Trinidad, the San Antonio, the Victoria, the Conception and the Santiago. Only one of those ships survived the voyage. See if you can unscramble the words next to each ship to work out its fate.

TRY THIS

VISIT THE VIRTUAL ARCHAEOLOGY MUSEUM AND EXPLORE SHIPWRECKS IN 3D WITHOUT GETTING WET!
HTTPS://WWW.BOEM.GOV/ENVIRONMENT/VIRTUAL-ARCHAEOLOGY-MUSEUM

The Santiago
DCEKREW
☐☐☐☐☐☐☐

The Conception
DBNERU
☐☐☐☐☐☐

The San Antonio
TOSL
☐☐☐☐

The Victoria
VVIRDESU
☐☐☐☐☐☐☐☐

The Trinidad
MSROT
☐☐☐☐☐

ANSWERS: The San Antonio: LOST, The Santiago: WRECKED , The Victoria: SURVIVED, The Conception: BURNED, The Trinidad: STORM

COMPLETE THE SENTENCES

Fill in the blanks with the supplied words to complete the sentences:

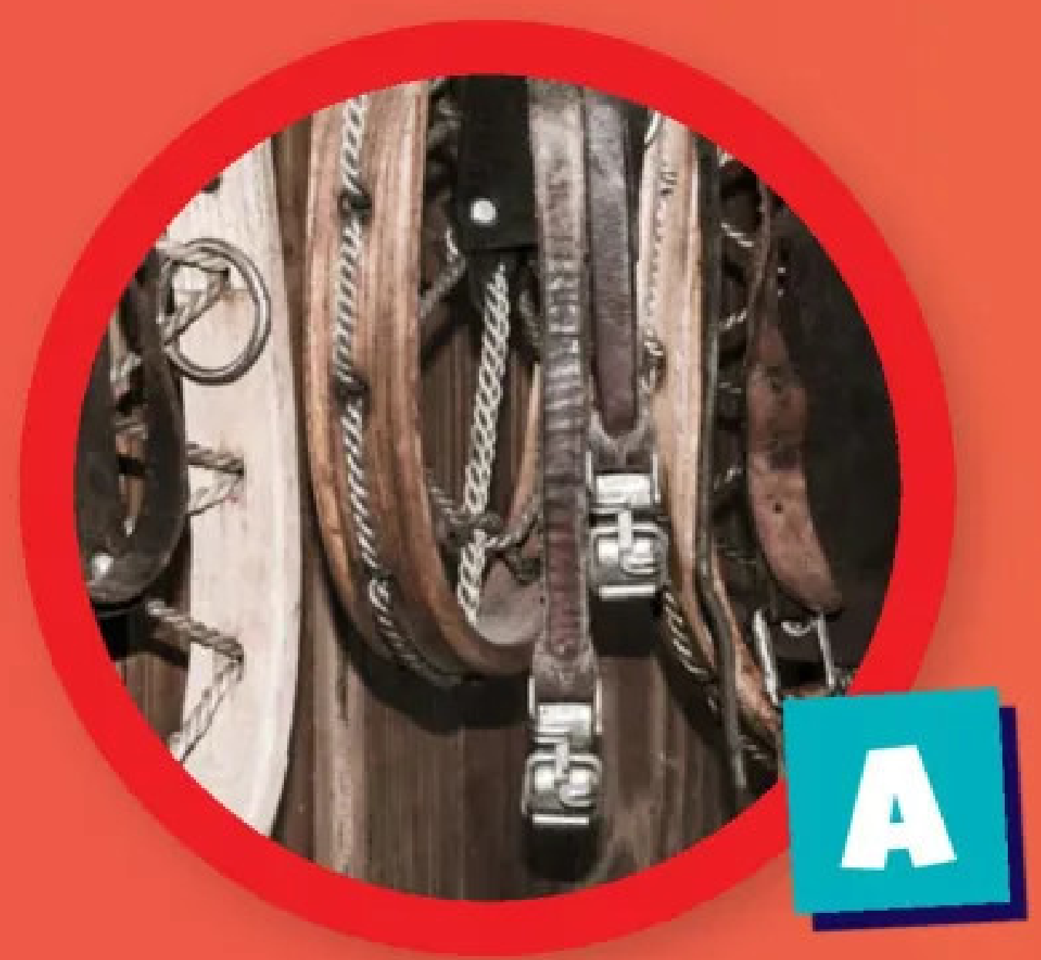
1. When explorers reached Australia, they took land and resources from the ______________ people.
2. The lands that explorers discovered – especially the Americas – were labelled the __________ world.
3. By the end of the Age of Exploration, the interior of __________ had yet to be discovered.
4. An agreement called the Treaty of Tordesillas in 1495 split newly discovered lands between _____________ and Portugal.

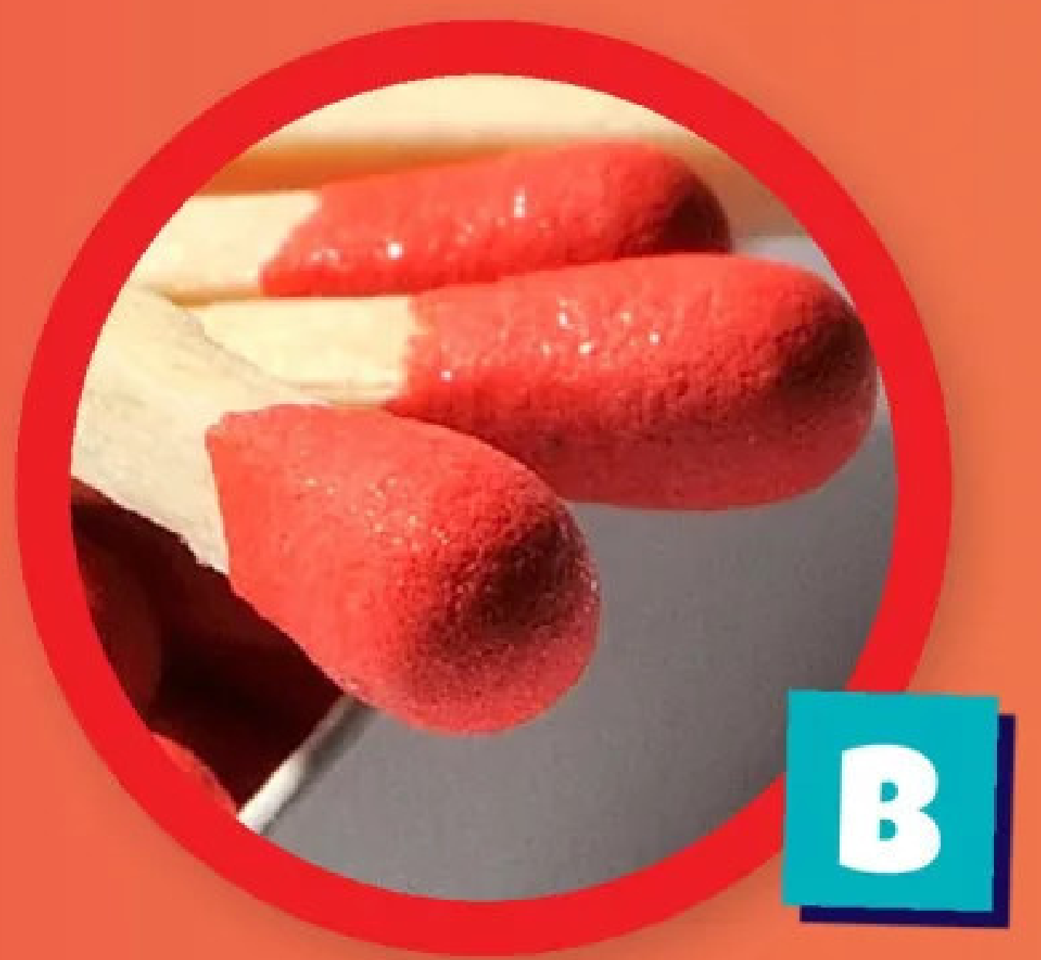
NEW
AFRICA
SPAIN
ABORIGINAL

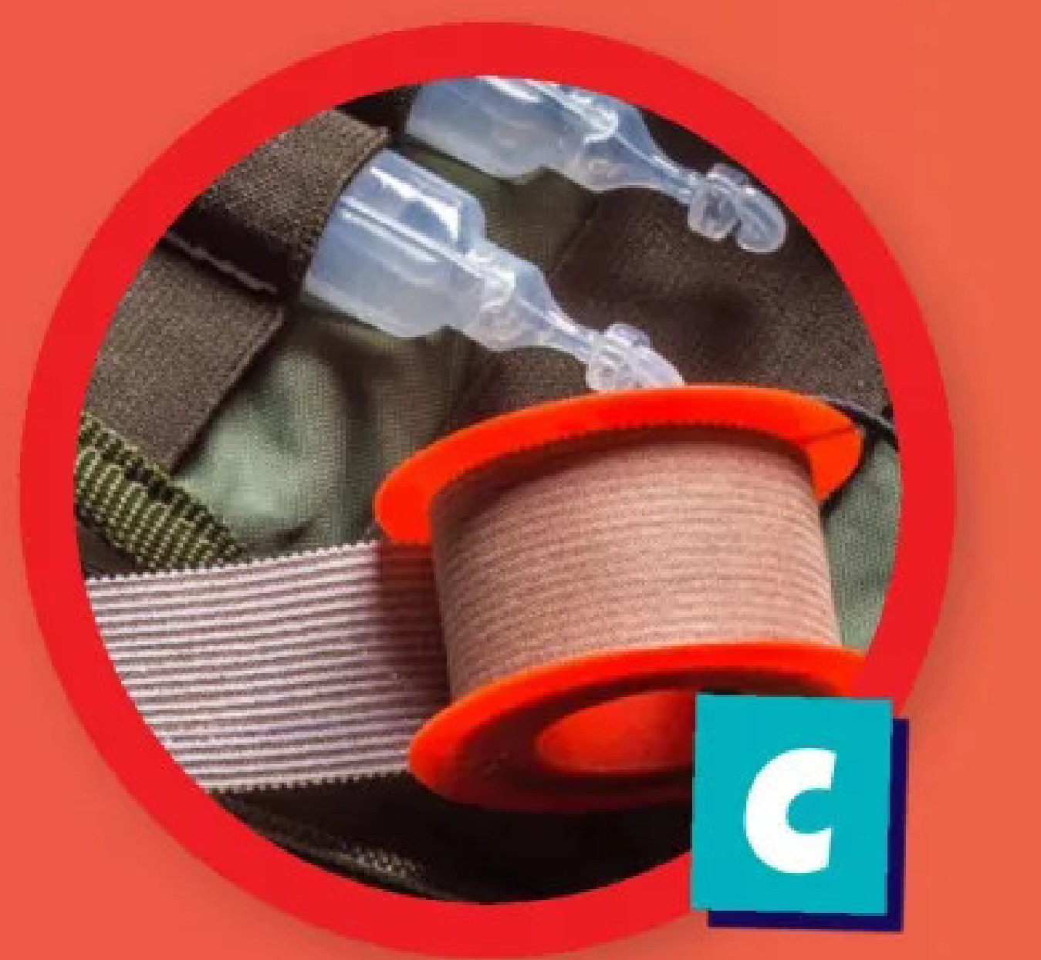
ANSWERS: 1.Aboriginal 2.New 3.Africa 4.Spain

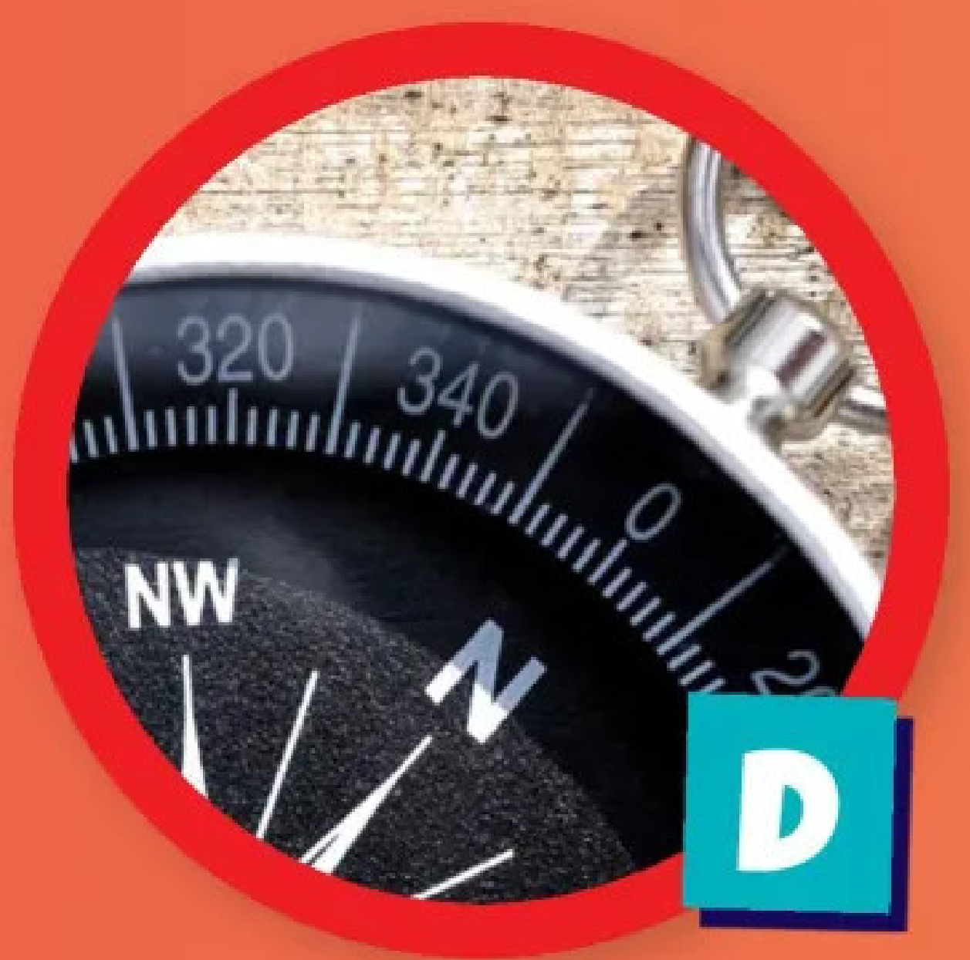
SURVIVAL SUPPLIES

Polar explorers needed to take a host of essential items with them on their travels. Can you identify what these items are?









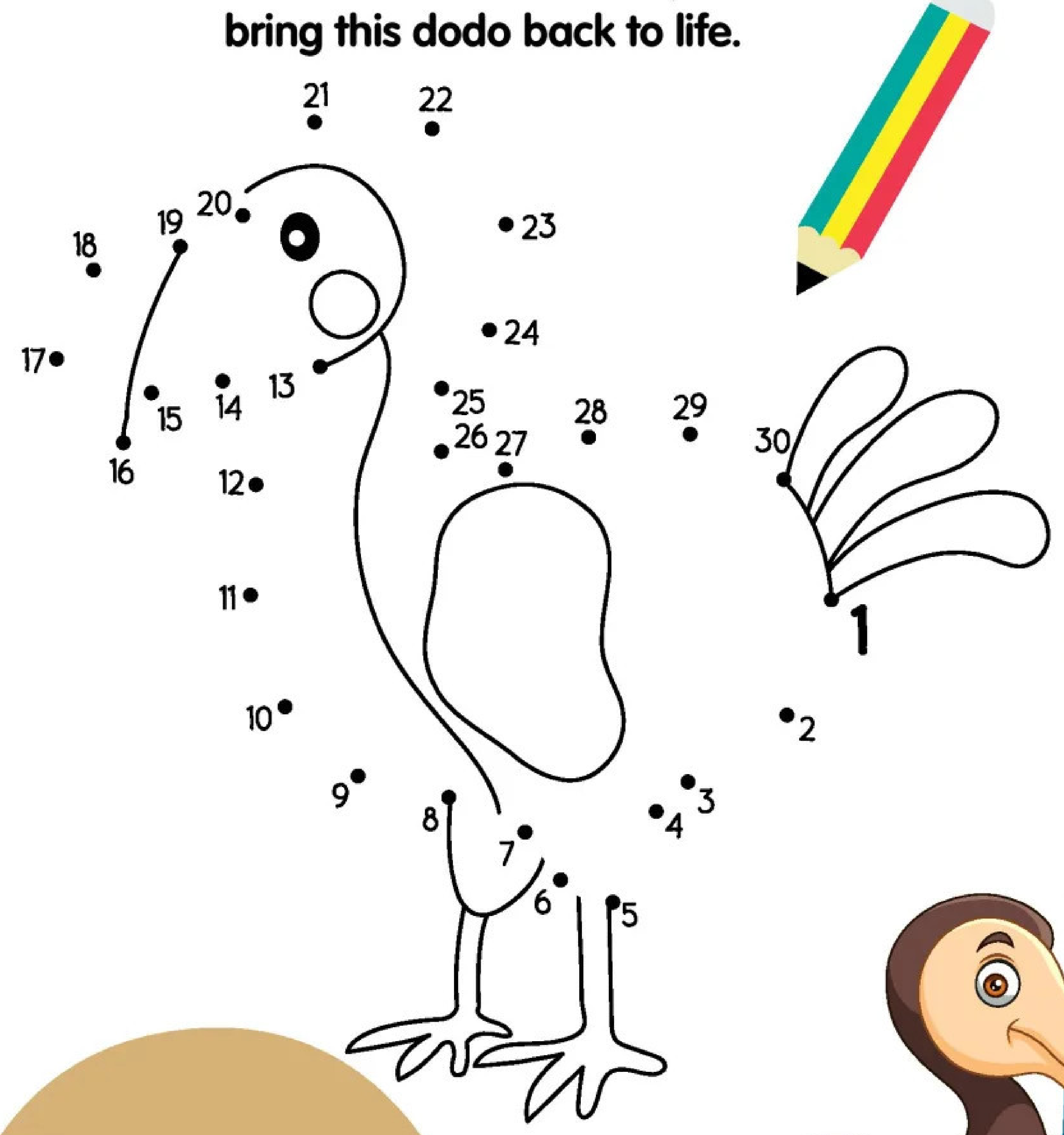
Write your answer in the boxes below and describe what you think they'd be used for.

ANSWERS: A. Snowshoes, their larger surface area means more snow supports a person's weight from below; B. Matchbox, to light fires for warmth and cooking; C Medical kit, for any mishaps along the way; D. Compass, to give a sense of direction.

HUNTED TO EXTINCTION!

In 1507, Portuguese sailors discovered ground-nesting birds called dodos, which lived on the island of Mauritius, east of Madagascar in the Indian Ocean. Rather than admire them and leave them alone, the sailors decided they were rather tasty! If that wasn't bad enough, the sailors had also taken dogs, cats, rats and monkeys on to the island, who attacked the dodos' eggs. As more and more sailors arrived, the dodo population fell. The last one died in 1681.

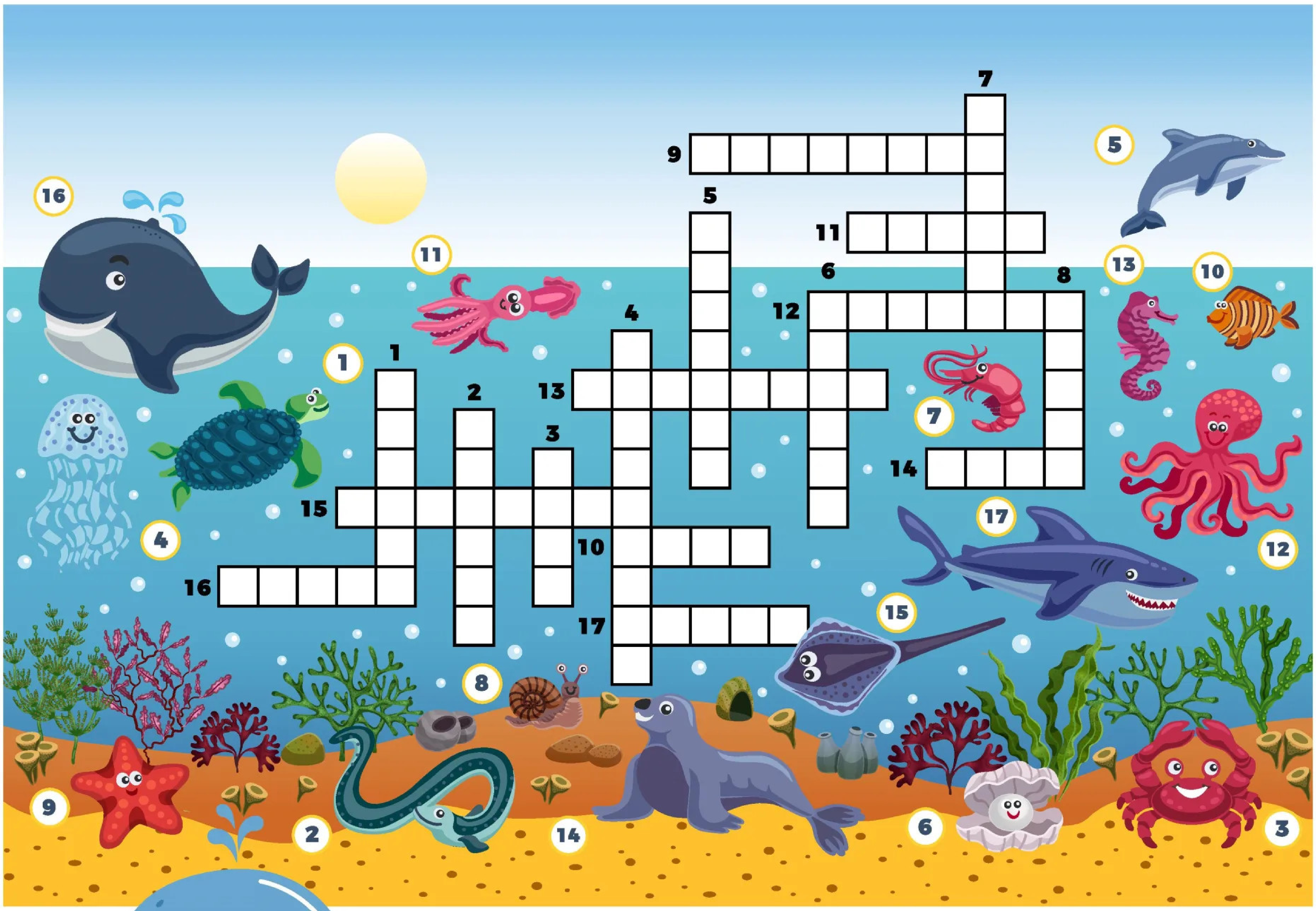
Join the dots then colour the picture to bring this dodo back to life.



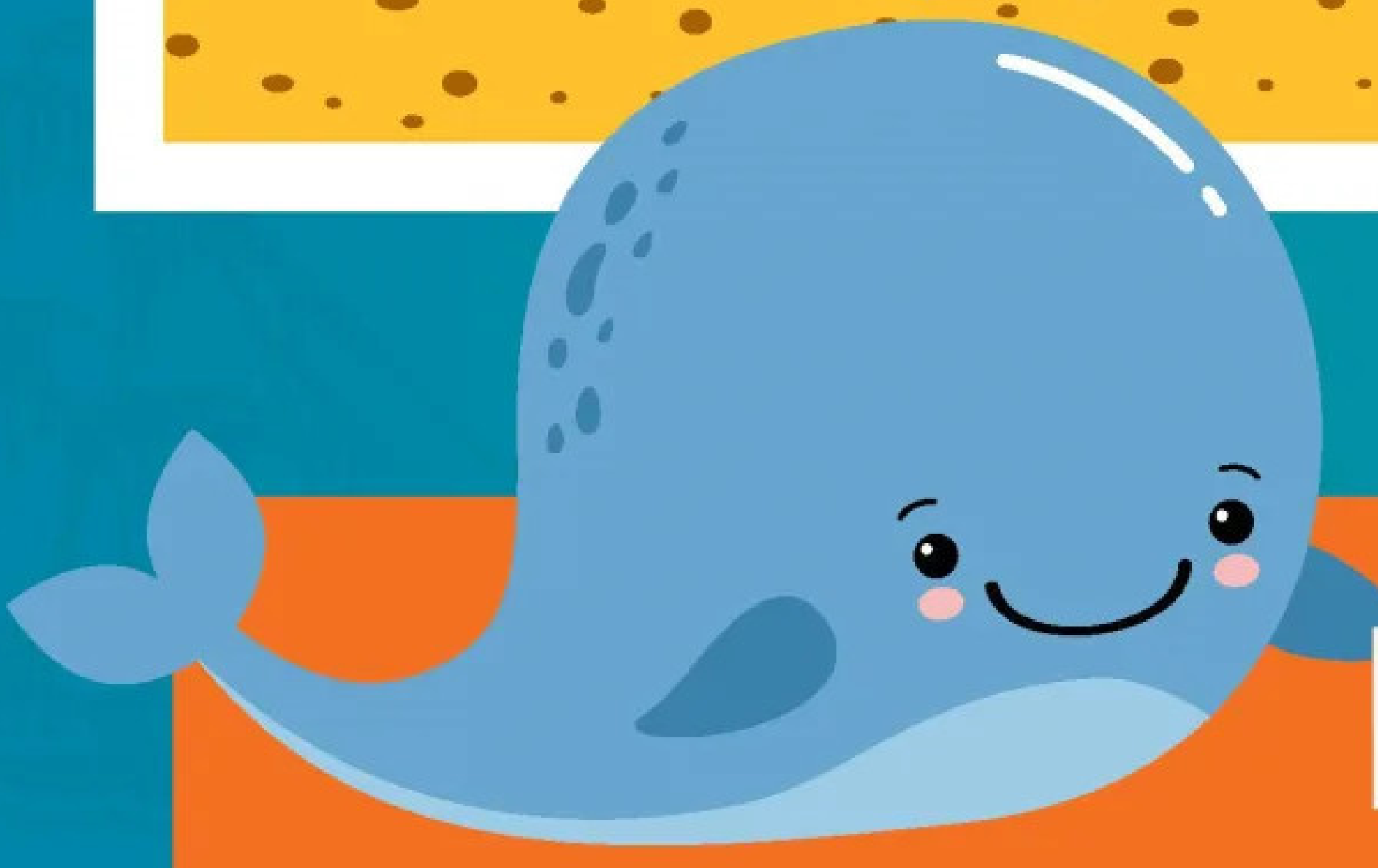
TAKING THE PLUNGE

French naval officer Jacques Cousteau enjoyed exploring life underwater. He co-designed the Aqua-Lung – the first SCUBA device (that stands for Self-contained underwater breathing equipment) – with Émile Gagnan. He also created the Calypso, which he fitted with a mobile laboratory. As a keen filmmaker, Cousteau and his crew plunged into the sea and showed the world what he found.

Here are some amazing creatures you will find under the sea. Can you identify them and fill in the crossword?

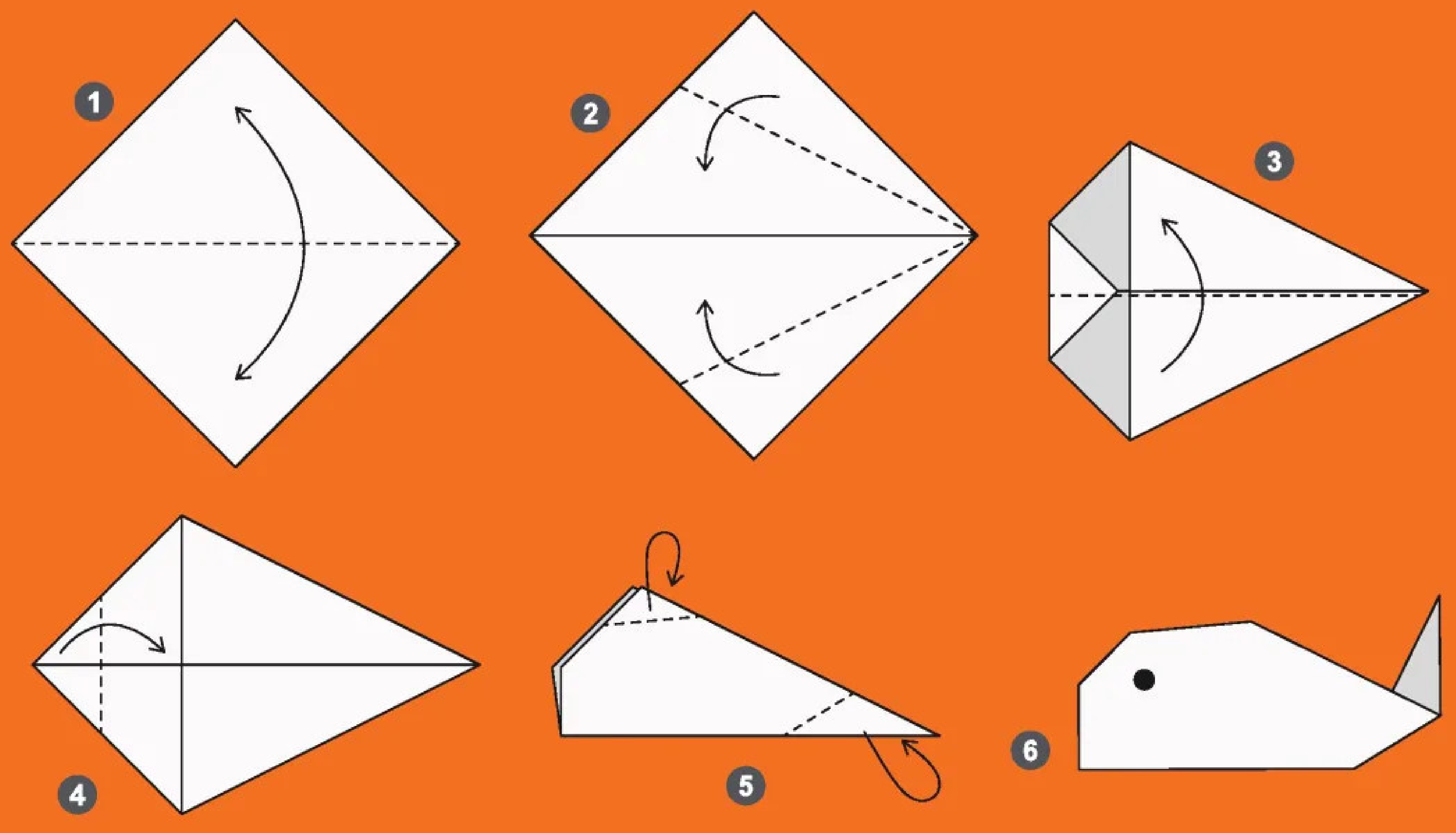


ANSWERS: 1. Turtle, 2. Conger, 3. Crab, 4. Jellyfish, 5. Dolphin, 6. Oyster, 7. Shrimp, 8. Snail, 9. Starfish, 10.Fish, 11. Squid, 12. Octopus, 13.Seahorse, 14. Seal, 15. Stingray, 16. Whale, 17. Shark



MAKE YOUR OWN WHALE!

Thor Heyerdahl sailed across the Pacific Ocean from South America to the Tuamotu Islands. No big deal, you may think, but he did this on a hand-made wooden raft! He wanted to show that people who lived many centuries ago were able to travel long distances by sea. At one point during his journey, a large whale shark circled his raft. Eek! Scary stuff. Thankfully, he survived. Grab a piece of paper and follow the instructions to make your own origami whale!



TRAVELLING AT A FAST RATE OF KNOTS!

When sailors needed to know how fast they were going, they would throw a rope with knots in it overboard. The rope would be attached to the ship and the knots would be evenly spaced. As the ship sailed, sailors could count how many knots were being passed. By working out how much time had passed using an hourglass, they could estimate the ship's speed. This technique was called dead reckoning, but it wasn't entirely accurate.

HOW FAR HAS THIS SHIP MOVED?

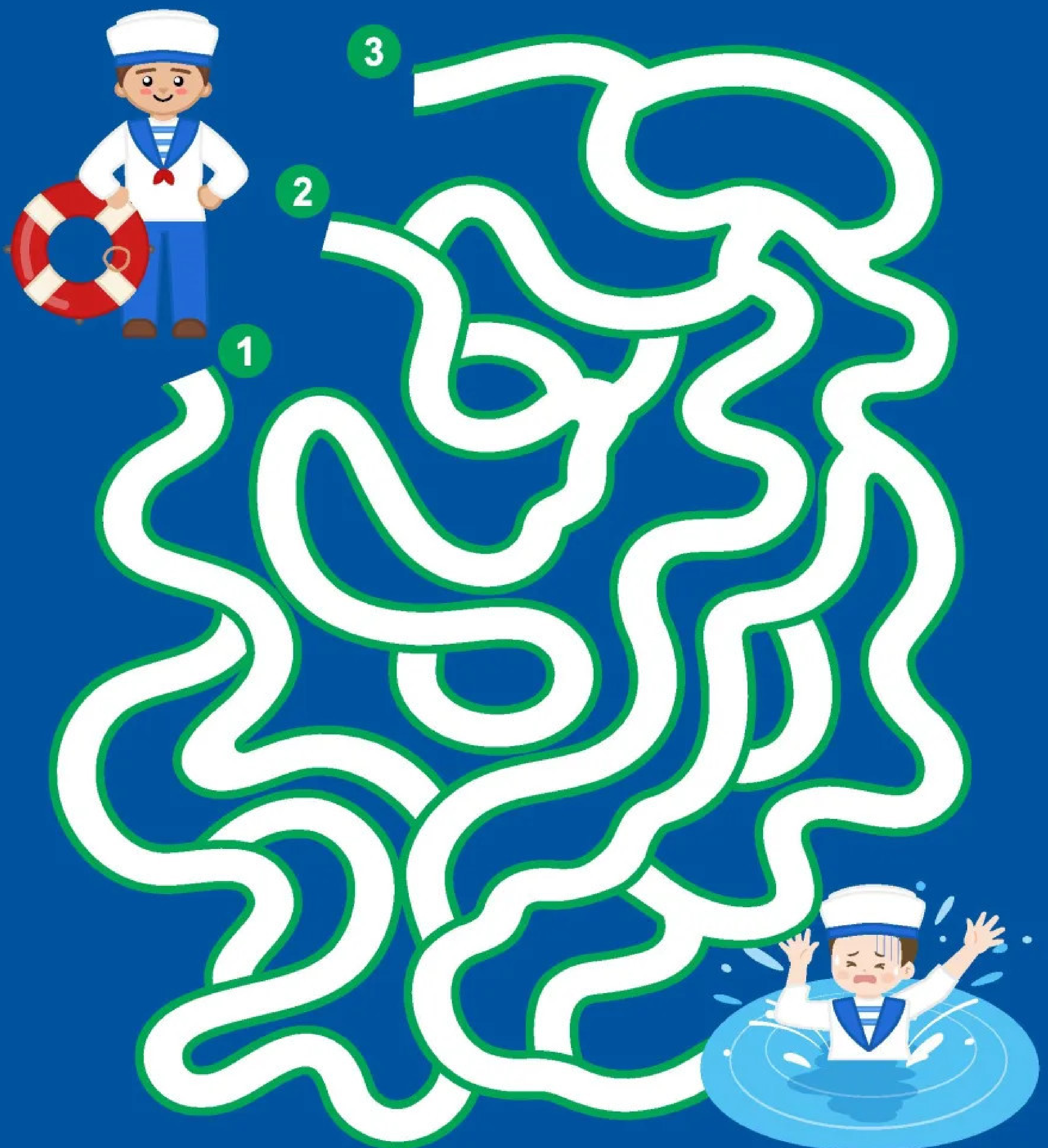
Knots are still used to measure speed. One knot is roughly equivalent to one mile per hour (actually 1.151mph or 1.852kph). If this ship is travelling at 60 knots, how many miles will it cover in 30 minutes?

ANSWERS: 30 miles

WEIRD DREAMS ARE MADE OF THESE!

When sailors spent too long at sea, they could come down with a terrible fever called calenture. It made them see the sea as a grassy green. Often, in their delirium they would leap overboard, believing it to be land. They would need to be rescued from the water.

Choose a route to help this sailor rescue his friend.



ANSWER: 3

STRANGE SEA MONSTERS

Some explorers made wild claims, telling anyone who would listen that they'd seen monsters at sea! There were supposed to be sea serpents off the coast of Norway and Gryphons near the Caspian Sea. Christopher Columbus reported seeing three mermaids in the Caribbean, and sea explorer Henry Hudson reckoned his crew saw them too in 1608. "They saw her tail, which was like the tail of a porpoise," he wrote. Such tales were so common, map makers often included illustrations of monsters.

DRAW YOUR OWN MONSTER!

Many of the sea monsters seemed to be based on land animals, but with different heads, large teeth and so on. Use the space here to draw your own monster and give it a name! What sort of powers will it have, and should explorers be scared?

© Getty Images

EXPLORING BY LAND

Although many explorers ventured across the world by ship, lots of others travelled mainly on land. They would go on foot or make use of any available transport – including animals – and would venture far further inland than the areas around the coast.

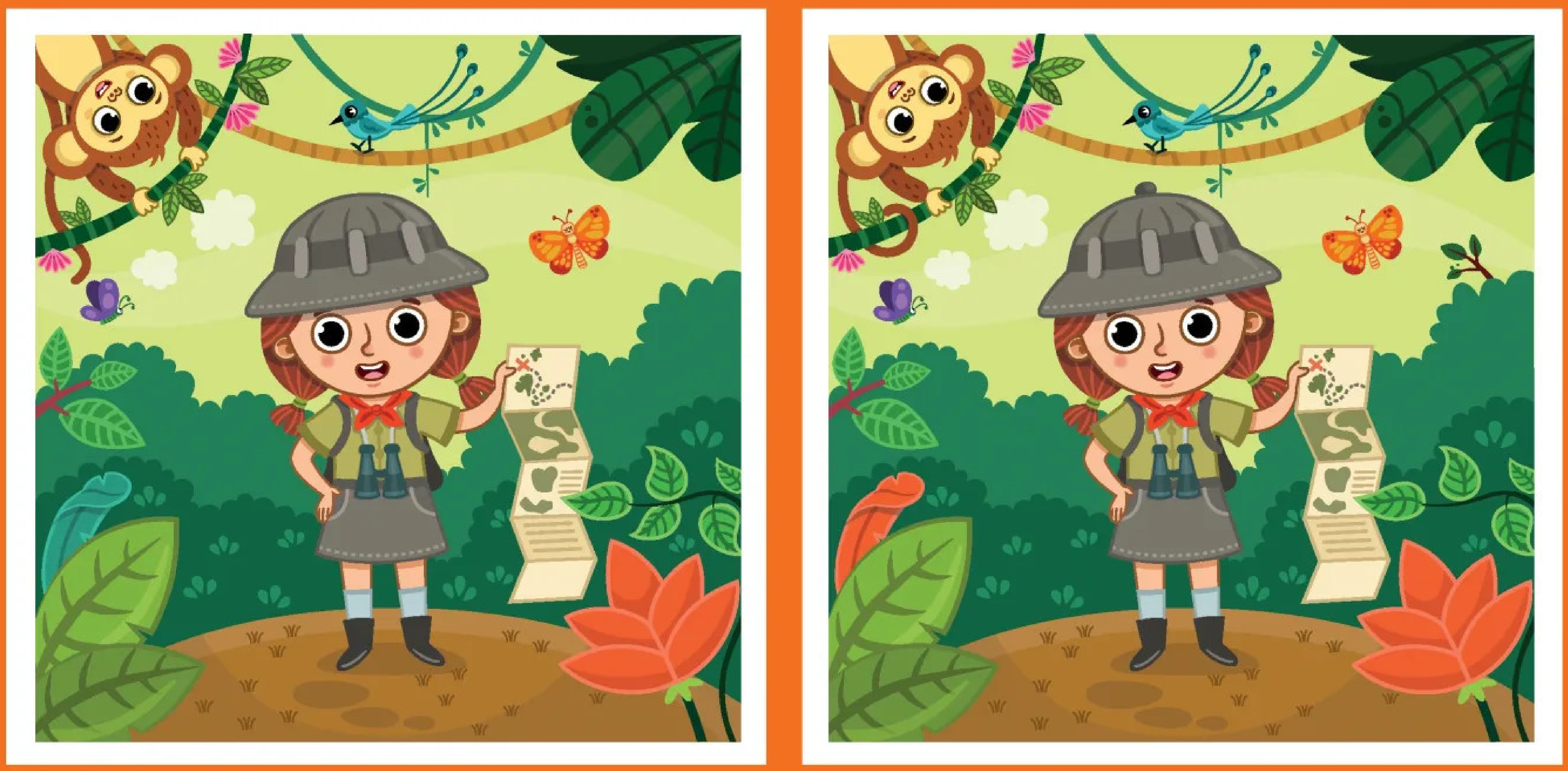
They encountered lots of danger. As well as coming across alarming animals and insects that most had never seen before (a lot of explorers were from Europe), they provoked people who (understandably) did not want them trampling on their territory. Explorers also had to make their way across dry deserts and slash their way through risky rainforests. Many were injured. Some died.

Over the next few pages, you're going to discover more about the brave people who embarked on land-based adventures. You'll see how the explorers ventured deep into the Americas and Africa and how lots of them would end up building upon the work of the seafarers.

As you do so, you'll learn about the places that the explorers put on the map, the things they encountered along the way and the importance of their wonderful work. Without many of these explorers, our understanding of the world past and present would be far poorer.

FIND YOUR WAY THROUGH THE JUNGLE!

Many explorers have attempted to discover more about the Amazon rainforest. Francisco de Orellana sailed the length of the Amazon river in 1542 and founded the city of Guayaquil in what is now Ecuador. Alexander Von Humboldt travelled through Latin and South America, making scientific discoveries in the rainforest by collecting flora and fauna. He even discovered the Uakari monkey!



Spot the difference: can you see five differences between the pictures of this jungle explorer?

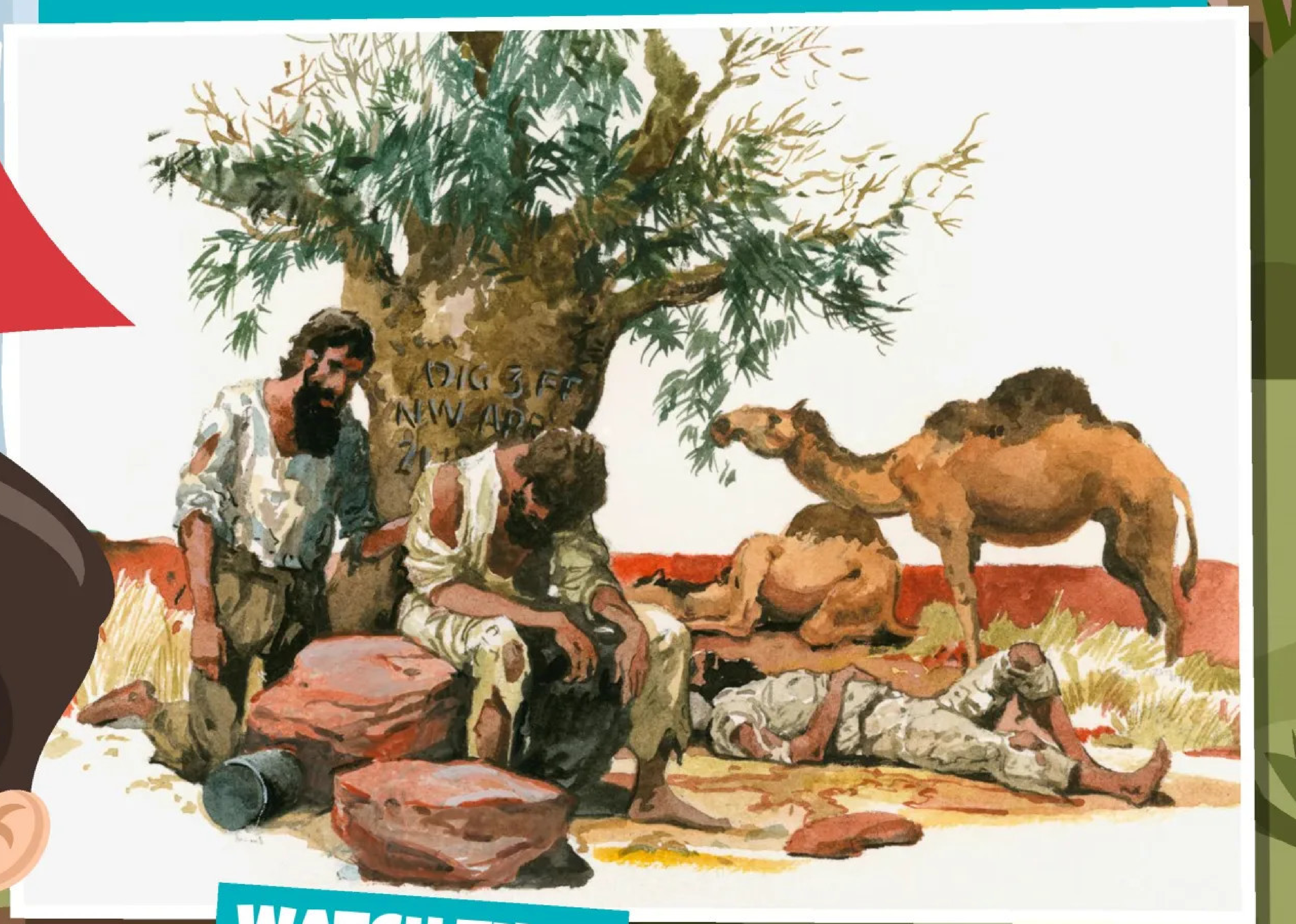
THE WORLD'S WORST EXPLORER!

Not all explorers were successful – Robert Burke definitely wasn't! Together with William Wills, he set out to find an undiscovered sea in Australia. Trouble is, there wasn't one!

Burke had no sense of direction. He often got lost in his own town, but was picked to lead an expedition by the Royal Society of Victoria in Australia, so he set off with 19 men, 26 camels and 23 horses.

He also took cedar-topped dining tables, 80 pairs of shoes and 30 cabbage tree hats! But the intense heat meant that the men and animals soon became exhausted as they crossed from the Melbourne on the south coast, through the centre, to the north coast.

They also began to run out of food, and many of the expedition crew suffered from ill health. Sadly, Burke and Wills died of starvation around 1861, a year after setting off.



WATCH THIS!

LEARN MORE ABOUT THE DOOMED JOURNEY OF BURKE AND WILLS

SCAN WITH YOUR PHONE OR TABLET

bit.ly/42GPouB

© Getty Images

MARCO POLO

In the 13th century, Europeans didn't have a lot of information about people who lived in Asia. They were aware of the Mongol Empire, which began in 1206 and stretched from eastern Europe to the Sea of Japan. But they did not know a lot about the continent's culture and wealth.

Marco Polo's family helped to change that. Shortly after Polo was born in 1254, his father, Niccolò, and uncle, Maffeo, left their home city of Venice in modern-day Italy. The two men headed for Constantinople, which was at the time the capital of the Latin Empire.

When they realised that Constantinople had become a dangerous city, they left and headed east. They eventually met the ruler of the Mongol Empire, Kublai Khan, who welcomed them with open arms. Soon, Niccolò and Maffeo were working for Khan, telling him all about Europe. Khan asked the two men if they would deliver a letter to Pope Clement IV, and they agreed.

After arriving back in Venice in 1269, Polo was able to catch up with his father once again. By now he was a teenager, so when his father and uncle went back to Asia in 1271, they took him along. Their aim was to travel to China along the Silk Road – a trade route from Europe to Asia – and take goods directly back to Venice. The journey to China took three years.

It was a great adventure for the teenager. The journey took him across land through the prosperous city of Tabriz, known for its silk and gold woven cloth. He also stayed in Badakhshan for a year when he fell ill, later travelling over the Pamir mountains, across the Gobi Desert and into Suchow in China. He met Khan and became an official messenger. He was also sent on many missions in China, Myanmar, India and Tibet.

Europeans had never visited many of these areas before, so when Polo returned after 24 years away, he had many fascinating tales to tell. Since he was captured by invaders from the rival city of Genoa when he arrived back in Venice in 1295, he shared the stories with a prisoner called Rustichello.

Rustichello wrote the stories down, and they were published in a book called *The Travels Of Marco Polo*. It told of the many foods, civilisations and cities he saw and the great advances being made in Asia. For Europeans, it was a wonderful window into another way of life – a different kind of world.

DID YOU KNOW?

Columbus carried with him a copy of Marco Polo's book!

TRUE LIES

When Marco Polo's book was published around 1300, the printing press had yet to be invented (Johannes Gutenberg invented it in 1436). Copies were left to scribes and translators, but they became riddled with mistakes, and some bits were added and removed. Many people also doubted that the stories were actually true, and they weren't sure Polo had actually visited China. People only believed the book was essentially true when other explorers visited Southeast Asia decades later and told similar stories.

TRY THIS!

Here is a passage from Marco Polo's book. Read and memorise the passage, then copy the text. Write down what you can remember and see if your version is the same as the original!

"ROUND THIS PALACE A WALL IS BUILT, INCLOSING A COMPASS OF 16 MILES, AND INSIDE THE PARK THERE ARE FOUNTAINS AND RIVERS AND BROOKS, AND BEAUTIFUL MEADOWS, WITH ALL KINDS OF WILD ANIMALS"

FIRST CLASS POSTAL SYSTEM

The Mongol Empire had established an efficient postal system, and there were more than 1,400 postal stations in China by the end of Kublai Khan's reign. Important 'first-class' messages were carried by people on horseback riding between staging posts 25 miles apart. If speed wasn't important, 'second class' messages could be sent by foot-runners who ran between stations that were three miles apart.

AND THEY'RE OFF...

If this horse runs at 50 miles per hour, it would travel the 25 miles from one staging post to another in 30 minutes. But let's say our friendly foot-runner runs at 10 miles per hour. How long would it take him to travel the same distance?

ANSWER: 2.5 hours

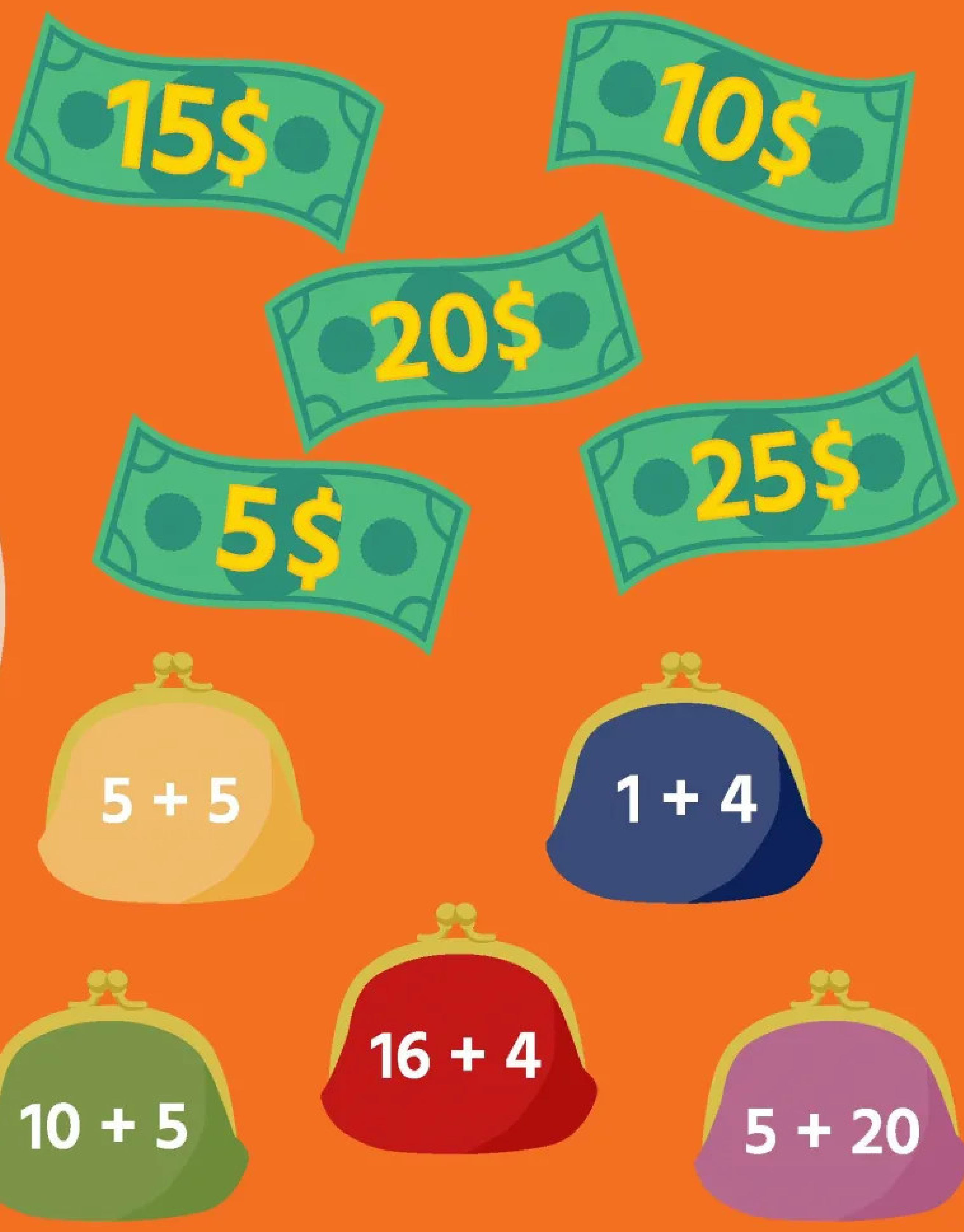
RABBAN BAR SAWMA

Before Marco Polo travelled from Europe to China, Mongol monk Rabban Bar Sauma attempted to embark on a journey from China to Europe. He wanted to go on a pilgrimage to Jerusalem and set off in 1260 with his student, Markos. Unfortunately, they had to stop in Baghdad in modern-day Iraq because of military fighting.

The trip resumed in 1287 when Mongol ruler Arghun made Rabban Bar Sauma an ambassador. Arghun asked him to meet European Christian monarchs as well as the Pope in the hope of joining forces in a fight against their common enemy, the Muslim empire. The monarchs didn't want to do this, so Rabban Bar Sauma returned. He wrote an account of his travels, which was published centuries later in 1895.

HOW MUCH?

Marco Polo described how people in 13th century China used paper as money, and that if people didn't accept the notes, they would be killed! Many Europeans, who were using silver and gold coins, did not believe that this could possibly be true, but it was! The first banknotes in Europe emerged in Sweden in 1661. Can you put the notes into the right pouches?



ANSWERS: 15=Green, 10=Yellow, 20=Red, 5=Blue, 25=Pink

© Getty Images

IBN BATTUTA

Some people became explorers by accident! In June 1325, when Ibn Battuta left home and headed for the holy city of Mecca, he fully intended to return. But Battuta, who was 21 at the time, continued to travel and, in the end, did not go back home for another 24 years!

Battuta's initial 18-month journey was not an unusual one. He was embarking on a holy pilgrimage called Hajj, which every adult Muslim must make at least once in their lifetime. He set out from his home in Tangier, a city in northern Morocco, and travelled through Egypt, Syria and Palestine, visiting cities such as Tunis, Cairo, Damascus and Jerusalem.

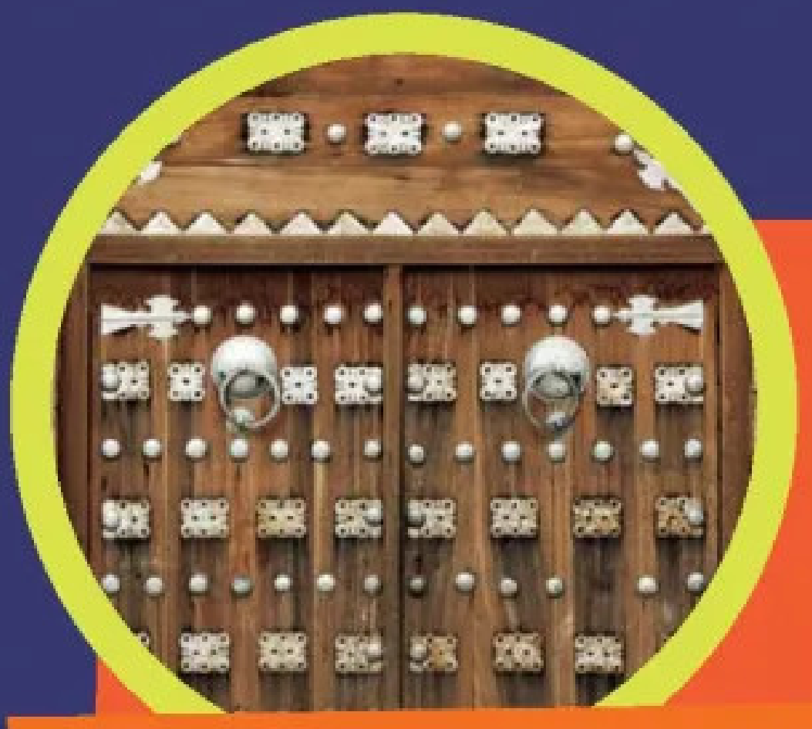
When he reached Mecca, however, he realised that he had enjoyed seeing new places so much that he decided to travel some more. He visited Najaf, Mosul and Baghdad in Iraq, stayed in Shiraz in Persia (modern-day Iran), and ventured along parts of the Silk Road. He entered Somalia and travelled down the coast of Tanzania, as well as visiting Anatolia (modern-day Turkey) and spending a month in Constantinople, which is today known as Istanbul.

Battuta then went east to India, where he was hired by the Sultan of Delhi as a judge for seven years, and journeyed to China, which greatly impressed him. During his time there, he took a trip along the Grand Canal and visited the Great Wall of China. He loved meeting with the country's ruler, Mongol Khan. He ended up going to every single country in the Islamic world.

When Battuta went home for the first time in 1349, he became upset. He knew his father had died, but he discovered that his mother had passed away too, so he decided to travel again, this time to the Islamic part of Spain. After venturing across the Sahara Desert, he went to Timbuktu in modern-day Mali. Then, in 1354, he returned to Morocco for good and wrote about his adventures. They were published in a book called *The Rihla*.

WHERE DID HE GO?

An easier question is where did he *not* go? Check out this map to see where he travelled. His journeys can be split into four periods, starting in 1325 and ending in 1453.

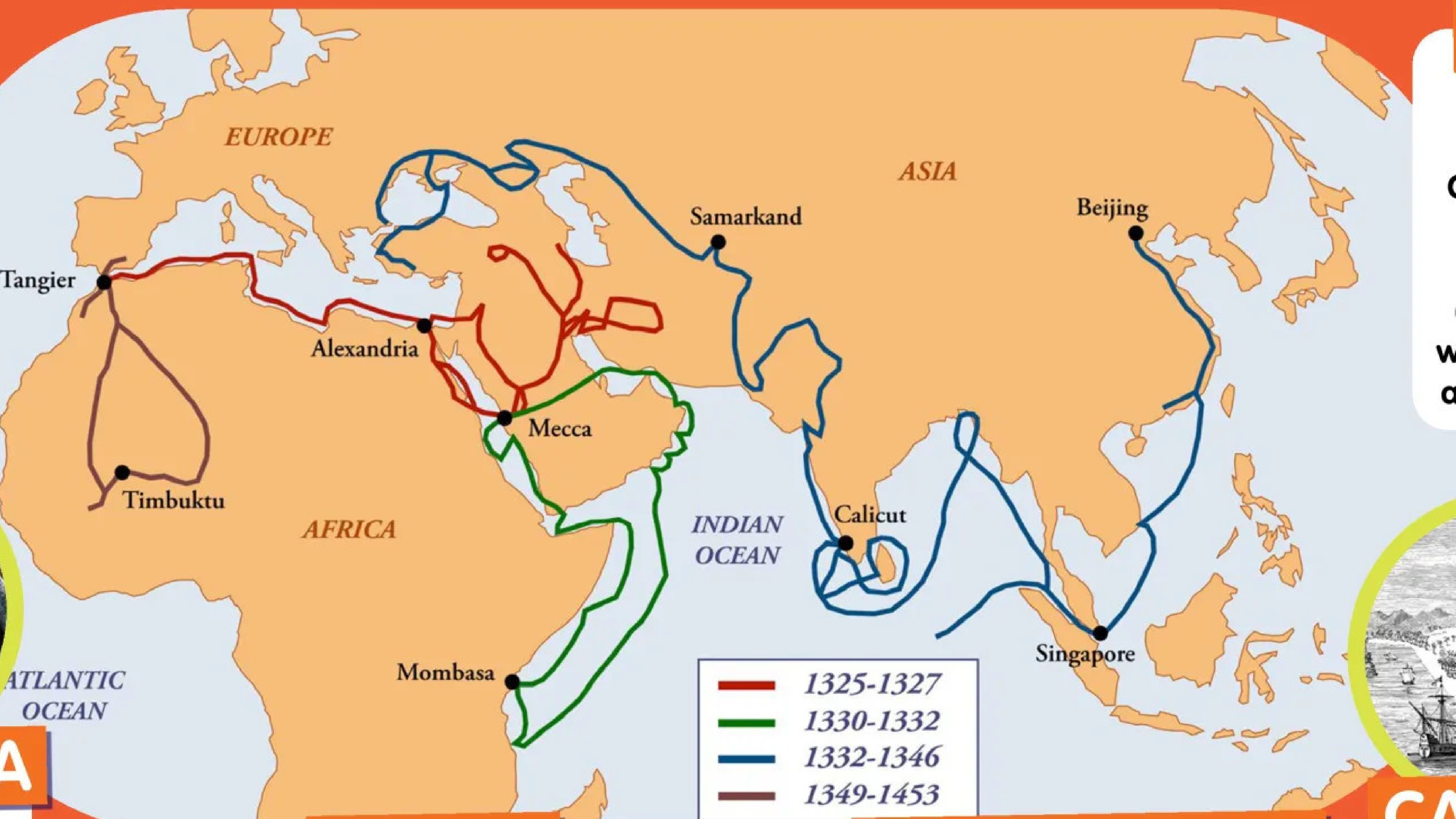


TIMBUKTU

When Battuta arrived in Timbuktu in Mali, it was only starting the flourish as a key trading town. Many scholars lived there, too.

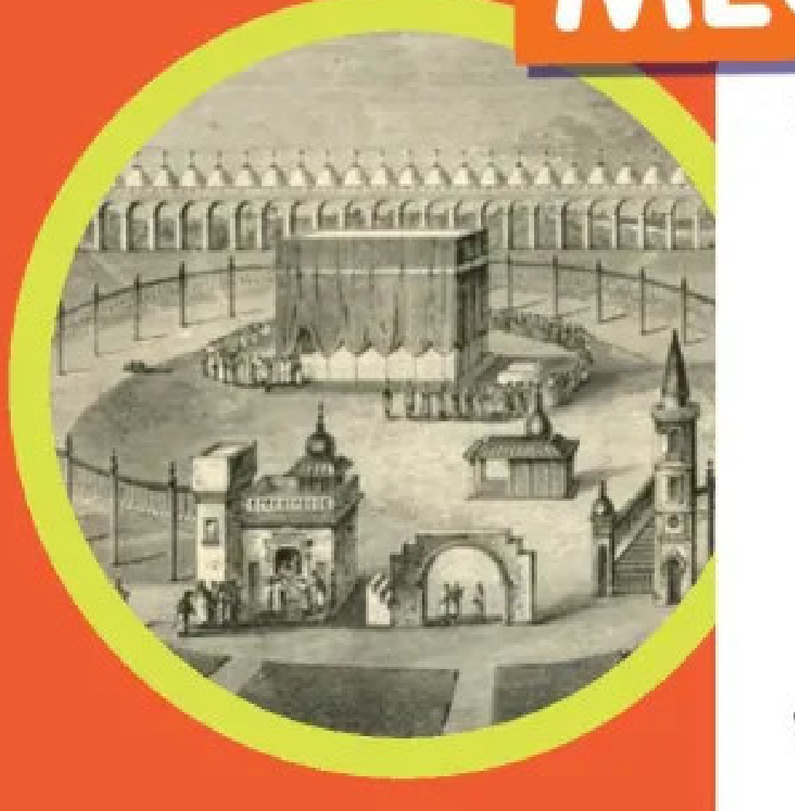
BEIJING

Battuta was impressed with Chinese silk fabrics, "the finest of all makes of pottery" (which he believed was made from coal) and wonderful food.



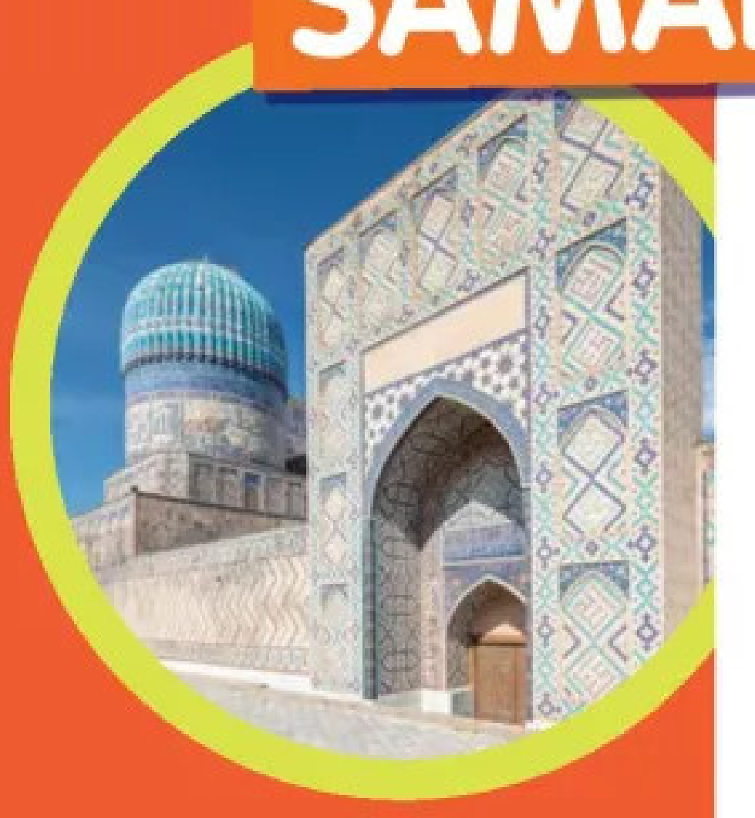
MOMBASA

When visiting the port town of Mombasa in what is today Kenya, Battuta wrote of its fruit trees, wooden mosques and a diet made up mostly of bananas and fish.



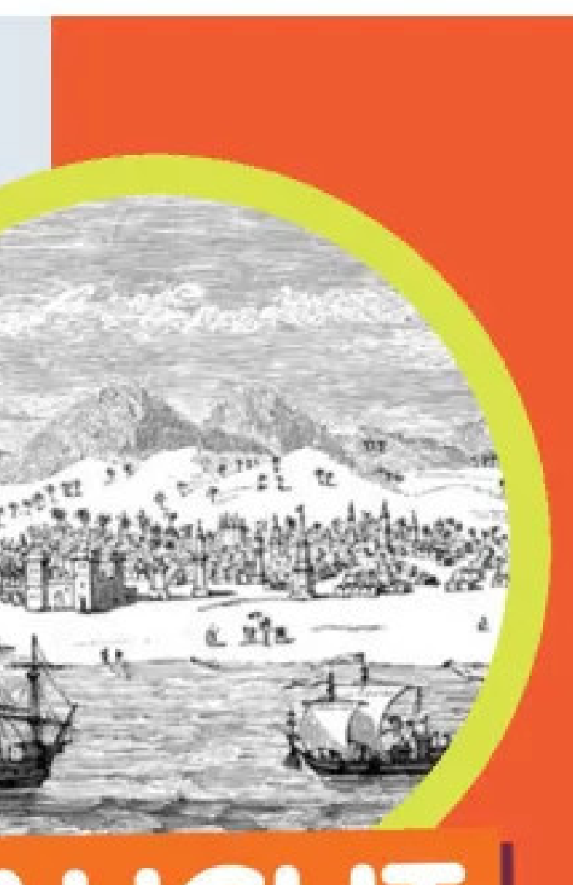
MECCA

The whole point of Battuta's original journey was to make a holy pilgrimage to Mecca. He went back three more times.



SAMARKLAND

Battuta called Samarkland "one of the greatest and finest of cities", but remarked that most of it had fallen into ruin.



CALICUT

In Calicut (now Kozhikode) in India, Battuta wrote of merchants gathering from across the world to trade in spices. Battuta was a judge in India for seven years.

OH RATS!

When Battuta was in Syria, there was an outbreak of bubonic plague, also known as the Black Death. This disease spreads to humans from the bite of a flea living on infected ground squirrels and rats. In this instance, the plague peaked between 1348 and 1350, killing up to 200 million across the world. Victims develop a fever, headaches, chills, weakness and swollen lymph nodes.

Can you complete these sentences using the words to the right?

1. People infected with bubonic plague were told to sit ______________.
2. Their homes were sprinkled with __________ and _________________.
3. They were advised to eat ____________________ .
4. To treat the condition, victims may have had their _____________ drawn.
4. Some people believed drinking __________ would aid their recovery.

BLOOD

FRESH FRUIT

VINEGAR

URINE

STILL

ROSE WATER

ANSWERS: 1. Still 2. Vinegar & Rose Water 3. Fresh Fruit 4. Blood 5. Urine

WATCH THIS!

A wonderful 44-minute documentary called *Journey To Mecca* was made in 2009, telling Ibn Battuta's amazing story. If that's too long then check out this four-minute BBC special instead. Why not use the space below to draw your own movie poster based on what you've seen?

https://www.youtube.com/watch?v=Qo7mBnslYQ8

CHARLES DARWIN

Charles Darwin was really interested in natural history. This means he enjoyed observing animals, fungi and plants in their natural environment. When he was at Cambridge University studying theology, Darwin collected beetles. He had a huge collection and examined the different species, some of which have since become extinct.

Darwin's passion for nature was no surprise. Born in 1809 in Shrewsbury, England, he had spent much of his childhood outdoors. He explored his parents' garden and learned about the different plants. But his greatest achievement was exploring a large part of the world from 1831 to 1836 as a naturalist on board a British Royal Navy ship called HMS Beagle.

The scientific expedition sailed along the coastline of South America, but Darwin did not like being at sea. He said it was boring, calling it a "desert of water". He also suffered from seasickness, so he spent as much time as he could on land in Brazil, Chile and Argentina. Whenever he got the chance, he collected samples of plants, rocks, animals and fossils, while making lots of notes.

As part of the trip, he explored the Galápagos Islands, which are in the Pacific Ocean – about 1,000 kilometres (621 miles) from the South American continent. He spent five weeks there, and was amazed by what he saw. As well as being able to study the volcanoes, he saw 15 species of giant tortoises, as well as native iguanas and finches. These animals were only found in this region of the world.

Darwin saw the Galápagos as a living laboratory, and noticed that there were different species of animal on the different islands. They had adapted to their environment over time, which was very important. By discovering that the many species of finches had come from one common ancestor, he proposed a process called natural selection.

He said a species in a new environment needed to survive. An organism would do so by inheriting the more desirable genetic traits from its parents. If a species could not inherit the correct traits, it would likely become extinct. In other words, a surviving species would evolve into a new species different from the others. Darwin published his theory of evolution in a book called *On The Origin Of Species* in 1859.

DID YOU KNOW?

Darwin didn't publish *On The Origin Of Species* for more than two decades because he was worried his theory of evolution would lead to religious persecution.

TRUE OR FALSE?

Darwin suffered from headaches, eczema and heart problems

TRUE ☐ OR FALSE ☐

He dropped out of medical school

TRUE ☐ OR FALSE ☐

Everyone loved his ideas

TRUE ☐ OR FALSE ☐

He found that humans and apes share an ancestor

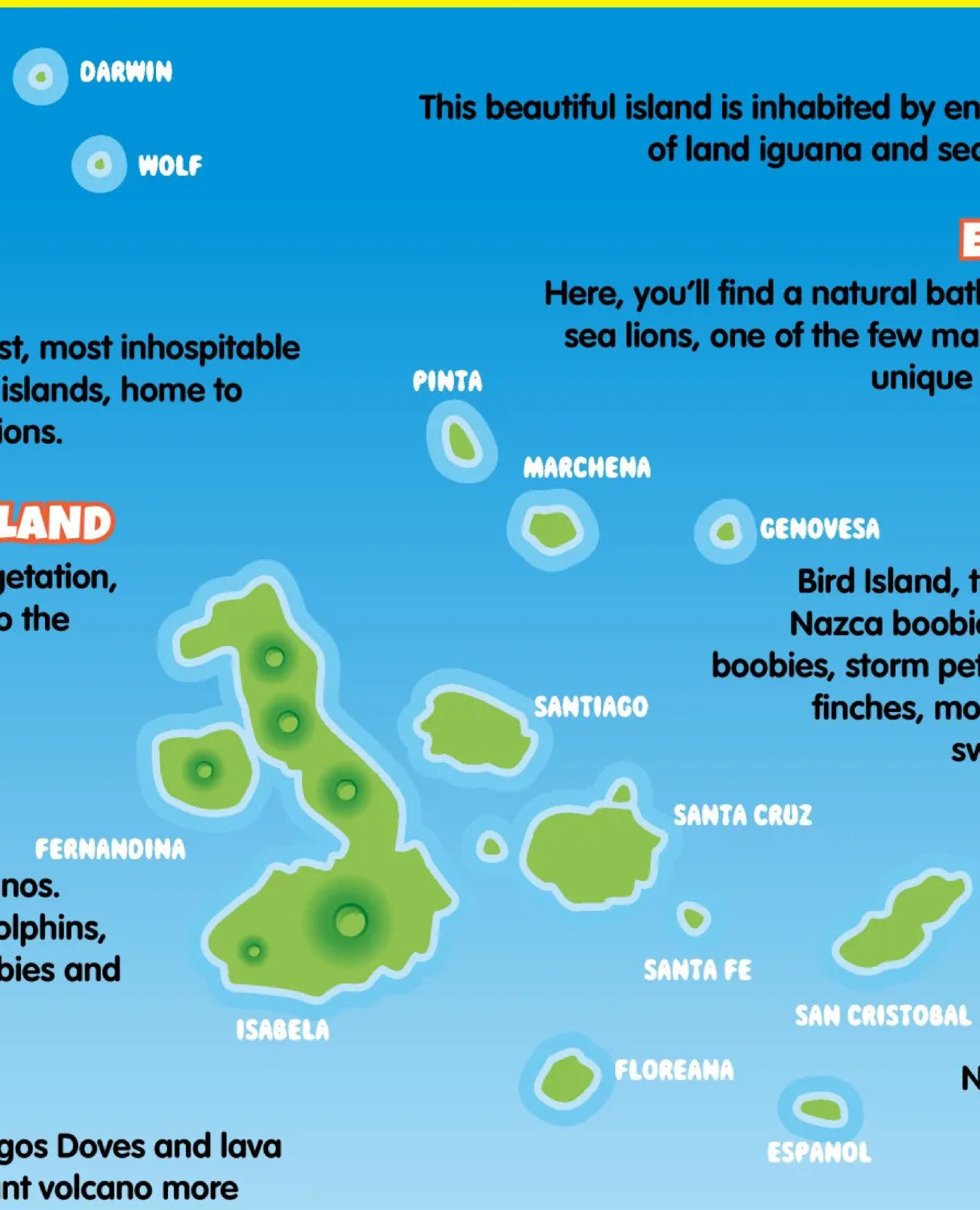
TRUE ☐ OR FALSE ☐

He loved listening to music by The Beatles

TRUE ☐ OR FALSE ☐

ANSWERS: True, True, False, True, False

EXPLORE THE GALÁPAGOS ISLANDS



FERNANDINA

Fernandina is the youngest, most inhospitable and most desolate of the islands, home to marine iguanas and sea lions.

NORTH SEYMOUR ISLAND

With bushy but sparse vegetation, North Seymour is home to the blue-footed boobies and swallow tail gulls.

SAN CRISTÓBAL

This island is made up of a handful of extinct volcanos. Frigate birds, sea lions, dolphins, blue- and red-footed boobies and marine iguanas live here.

SAN SALVADOR

Darwin's finches, Galápagos Doves and lava lizards inhabit this dormant volcano more than 1,000 feet above the coastline.

ISABELA

The largest of the islands. As well as Sally Lightfoot crabs, it has a large number of wild tortoises.

SANTA FE

This beautiful island is inhabited by endemic species of land iguana and sea lion colonies.

ESPAÑOLA

Here, you'll find a natural bathing beach for sea lions, one of the few mammal species unique to Galápagos.

GENOVESA

Also known as Bird Island, this is home to Nazca boobies, red-footed boobies, storm petrels, Darwin's finches, mockingbirds and swallow-tailed gulls.

DARWIN

Named after Charles Darwin, its waters attract whale sharks and even dolphins.

SANTA CRUZ

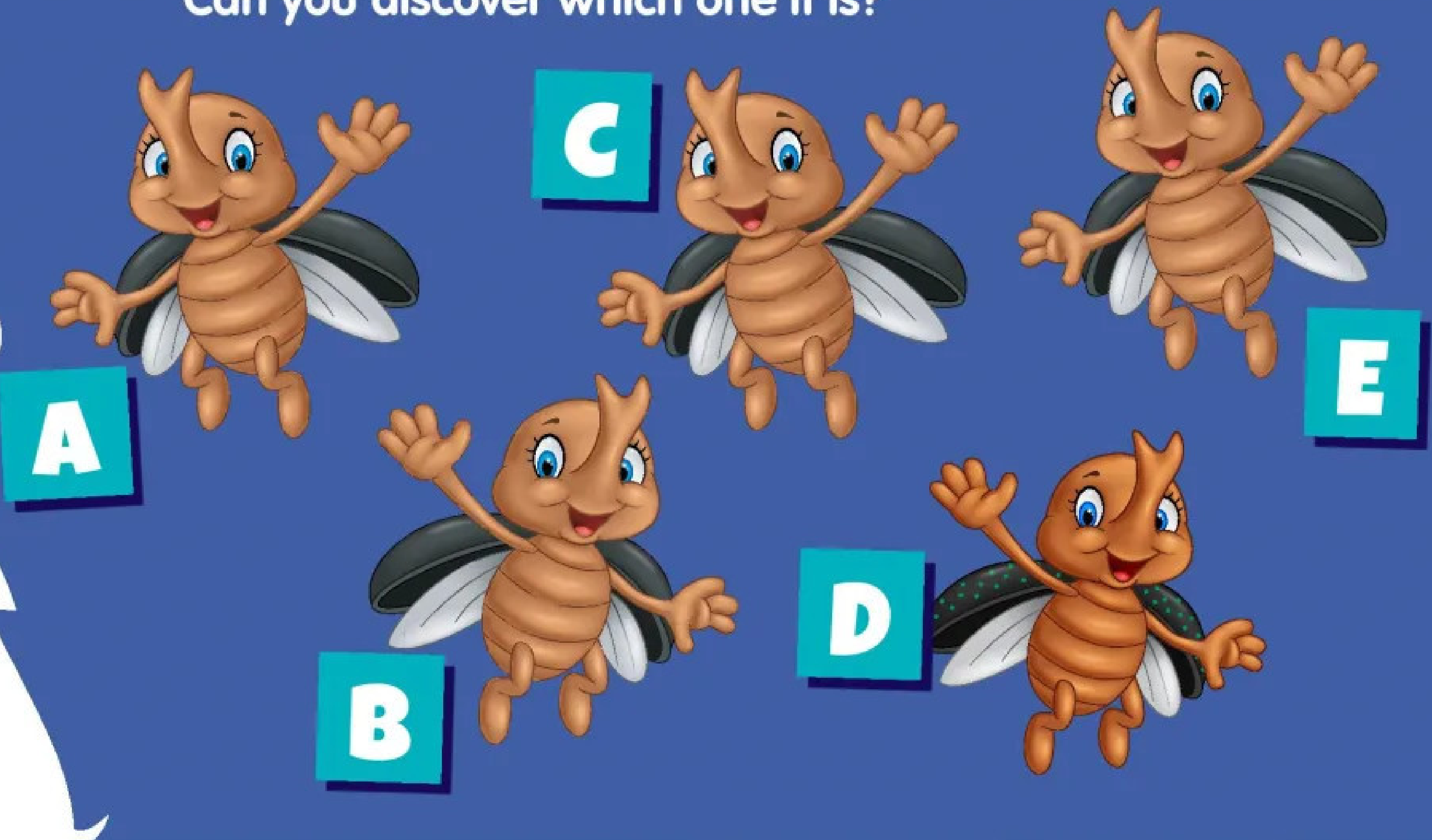
Santa Cruz is crossed with a forest of flourishing green giant daisies and is home to the enormous Galápagos tortoise.

BEET THIS!

A beetle that had been collected by Darwin in Argentina in 1832 was found to be a new species 180 years later! Scientists revealed the news in 2014, saying the beetle – called Darwinilus sedarisi – is one of 58,000 known species of rove beetles!

HELP IDENTIFY ANOTHER NEW SPECIES!

One of these – the odd one out – is a new species. Can you discover which one it is?



ANSWERS: D. This beetle has green spots on its wings

PHEW!

When he was 12 years old, Darwin admitted that he only washed his feet once a month! But there was a sad reason: "I cannot help it," he wrote. "For we have nothing to do it with."

NELLIE BLY

Nellie Bly was an awesome journalist. Born in 1864, she began her career at *The New York World* newspaper where, in 1887, she went undercover at a mental health asylum called Blackwell's Island and reported on how awful the conditions were. Bly also investigated corruption in New York City. She became very well known.

In 1889, she read Jules Verne's novel, *Around The World In 80 Days*, which had been published 17 years earlier. The fictional adventure told of Phileas Fogg and French valet Jean Passepartout's attempt to travel the world in less than three months to win a £20,000 bet. Bly believed she could circumnavigate the world in less time.

She left on 14 November 1889, boarding a steamer called Augusta Victoria from New Jersey, USA, to London, UK. She only took the dress she was wearing, some underwear, toiletries, an overcoat and some money. *The New York World* published daily updates, and readers loved discovering more about her adventure.

From the UK, she went to France and actually met Verne. She continued to Italy, the Suez Canal in Egypt, Ceylon (modern day Sri Lanka), and a group of British territories in Southeast Asia called the Straits Settlements, which included Singapore, Hong Kong and Japan. She travelled on foot, horses, donkeys, rickshaws, trains and ships. She reported on her trip via electric telegraph and the postal system.

What she didn't know – until she got to Hong Kong – is that she was part of a race. A journalist for *Cosmopolitan* magazine, Elizabeth Bisland, was tasked with beating her, going the opposite way. But after reaching Japan, Bly took a ship back to the USA, completing her journey by train from San Francisco to New York. She arrived on 15 January 1890 to huge crowds, beating Bisland. She had gone around the world in 72 days!

MONKEYING AROUND!

During her travels around the world, Nellie Bly bought a monkey in Singapore. Purchased from the family of her driver, she called it McGinty. The monkey accompanied her on the rest of her travels and became rather famous!

MCGINTY IS CONFUSED

Nellie wasn't born Nellie Bly, and she also had a nickname. Can you work out the answers to these clues and tell McGinty what she was also called?

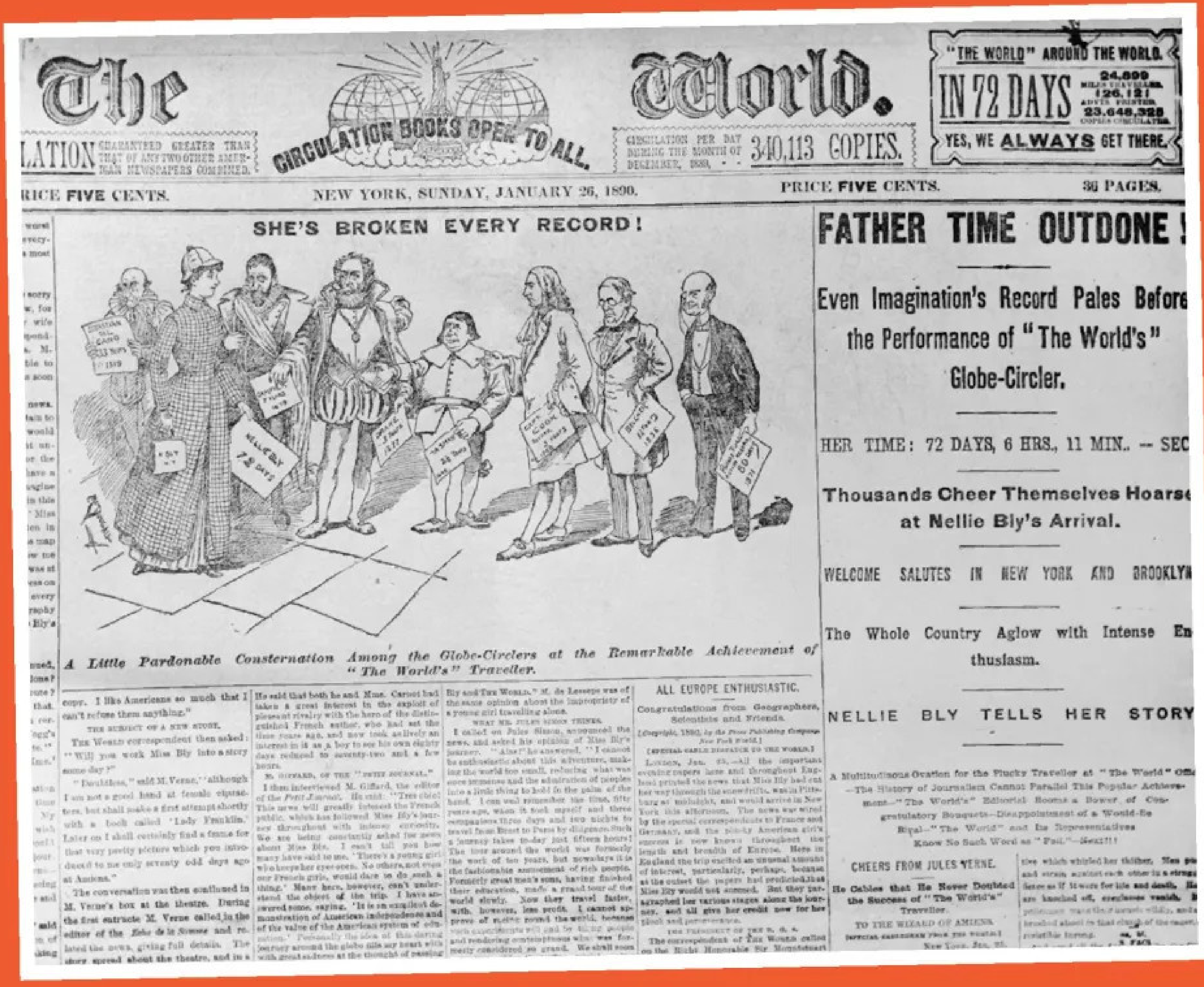
1. She once shared a name with Britain's longest-serving monarch.
2. You get this colour if you mix red with white.

PINKY
MARY
ELIZABETH
BLUEY
YELLOWY
JOAN
CATHERINE
GREENY

ANSWER: Elizabeth Pinky

READ ALL ABOUT IT!

This is how *The New York World* reported Nellie Bly's success:



The World.

CIRCULATION GUARANTEED GREATER THAN THAT OF ANY TWO OTHER AMERICAN NEWSPAPERS COMBINED.

CIRCULATION BOOKS OPEN TO ALL.

CIRCULATION PER DAY DURING THE MONTH OF DECEMBER, 1889, 340,113 COPIES.

"THE WORLD" AROUND THE WORLD. IN 72 DAYS 24,899 MILES TRAVELLED. 126,121 ADVTS PRINTED. 23,648,328 COPIES CIRCULATED. YES, WE ALWAYS GET THERE.

PRICE FIVE CENTS. NEW YORK, SUNDAY, JANUARY 26, 1890. PRICE FIVE CENTS. 36 PAGES.

SHE'S BROKEN EVERY RECORD!

A Little Pardonable Consternation Among the Globe-Circlers at the Remarkable Achievement of "The World's" Traveller.

FATHER TIME OUTDONE!

Even Imagination's Record Pales Before the Performance of "The World's" Globe-Circler.

HER TIME: 72 DAYS, 6 HRS., 11 MIN. -- SEC

Thousands Cheer Themselves Hoarse at Nellie Bly's Arrival.

WELCOME SALUTES IN NEW YORK AND BROOKLYN

The Whole Country Aglow with Intense Enthusiasm.

NELLIE BLY TELLS HER STORY

ALL EUROPE ENTHUSIASTIC.

Congratulations from Geographers, Scientists and Friends.

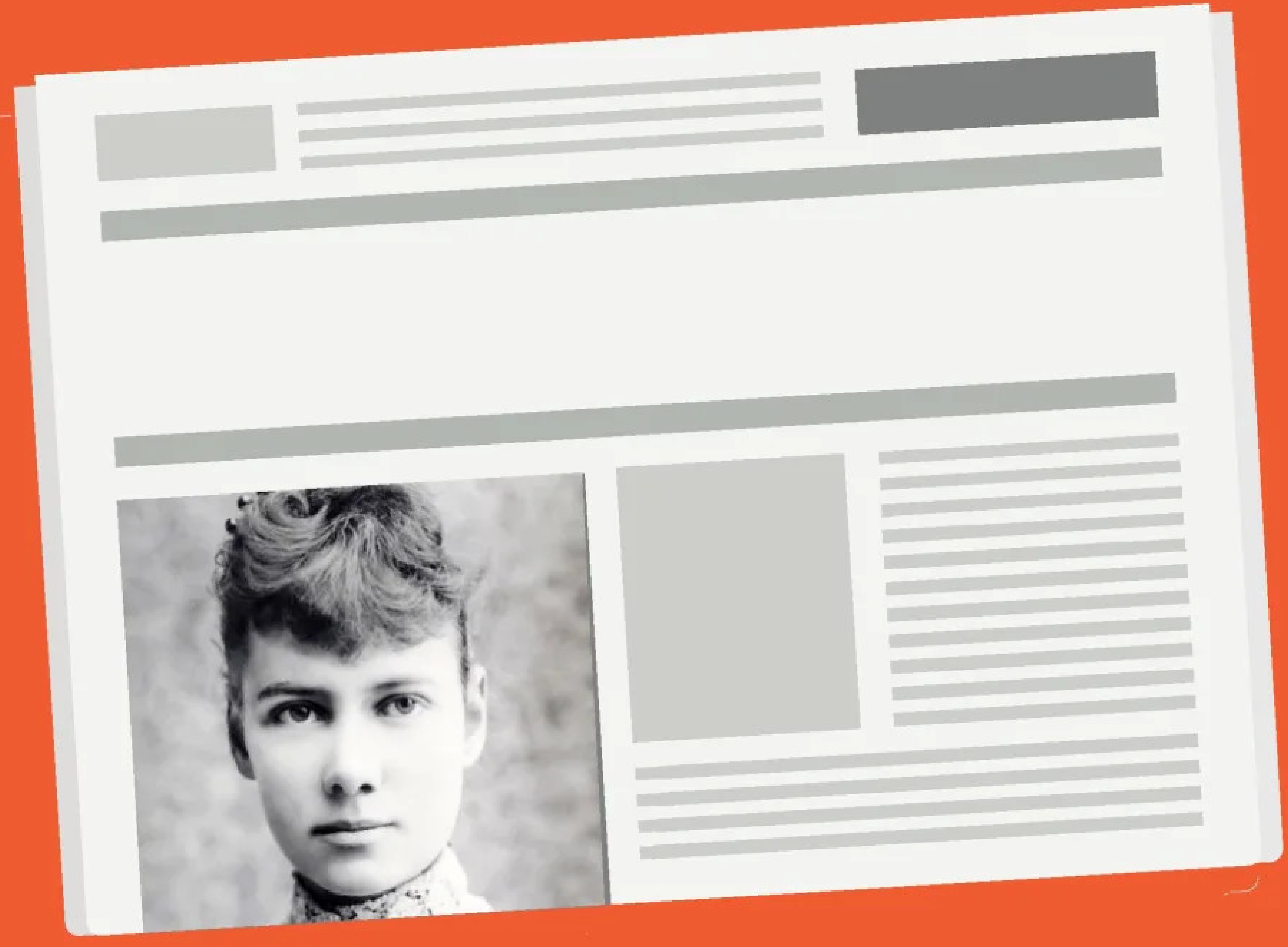
CHEERS FROM JULES VERNE.

He Cables that He Never Doubted the Success of "The World's" Traveller.

TO THE WIZARD OF AMIENS.

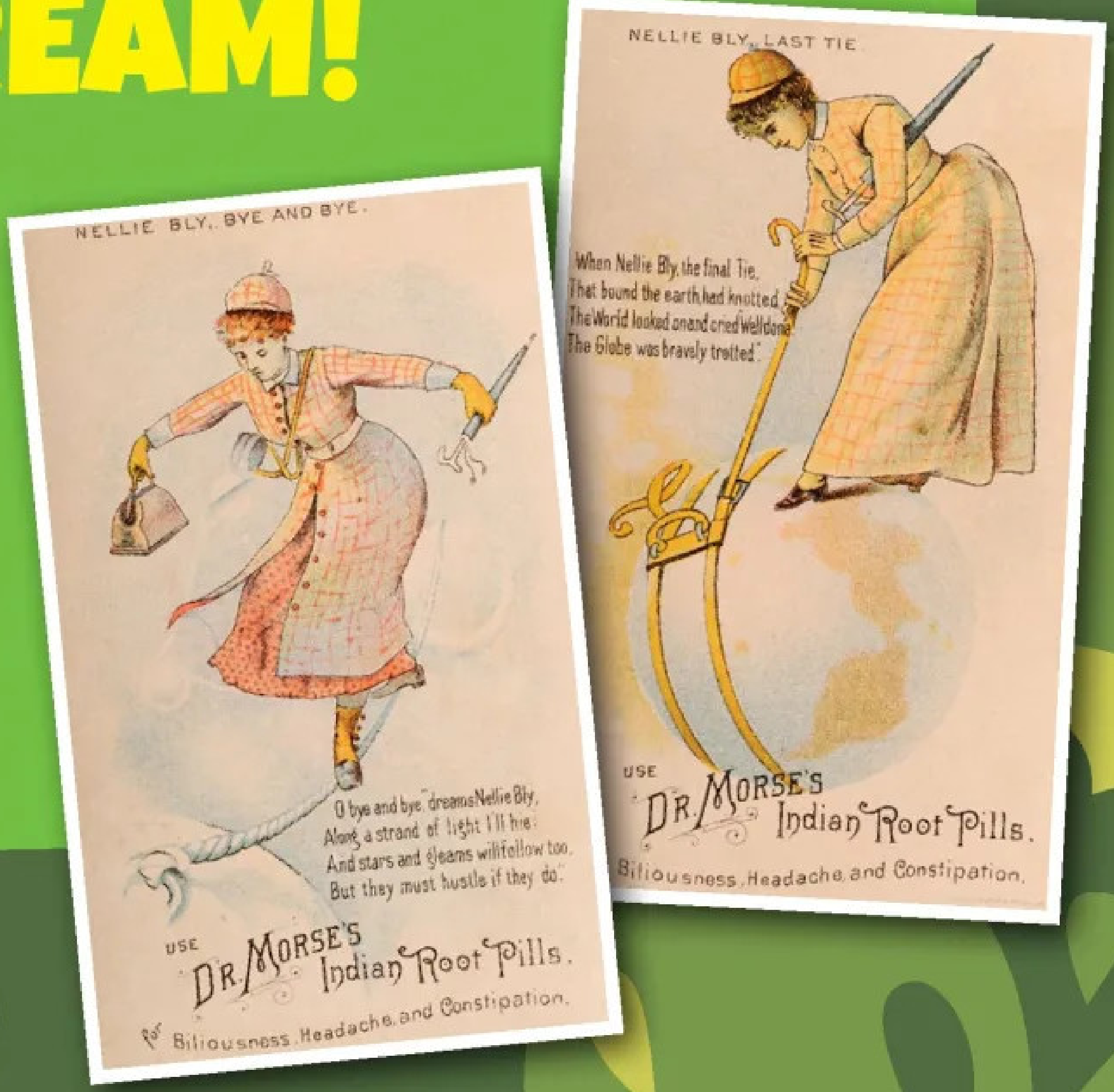
TRY THIS!

Try this! Imagine you were working for a tabloid newspaper. What would your headline be? Write it on the front page below.



AN ADVERTISER'S DREAM!

Nellie Bly became a celebrity after her journey around the world, and just like with stars today, companies wanted to be associated with her. Her name and face ended up on many products, such as Dr Morse's Indian Root Pills – for biliousness, headaches and, er, constipation!


NELLIE BLY, BYE AND BYE.
"O bye and bye," dreams Nellie Bly,
Along a strand of light I'll hie:
And stars and gleams will follow too,
But they must hustle if they do."
USE DR. MORSE'S Indian Root Pills.
For Biliousness, Headache, and Constipation.
NELLIE BLY, LAST TIE.
When Nellie Bly, the final Tie,
That bound the earth, had knotted,
The World looked on and cried "Well done!
The Globe was bravely trotted."
USE DR. MORSE'S Indian Root Pills.
Biliousness, Headache, and Constipation.

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END OF THE LAND

Just by reading about the work of Marco Polo, Ibn Battuta, Charles Darwin and Nellie Bly, you will now understand just why the land explorers of the past have proven to be so important.

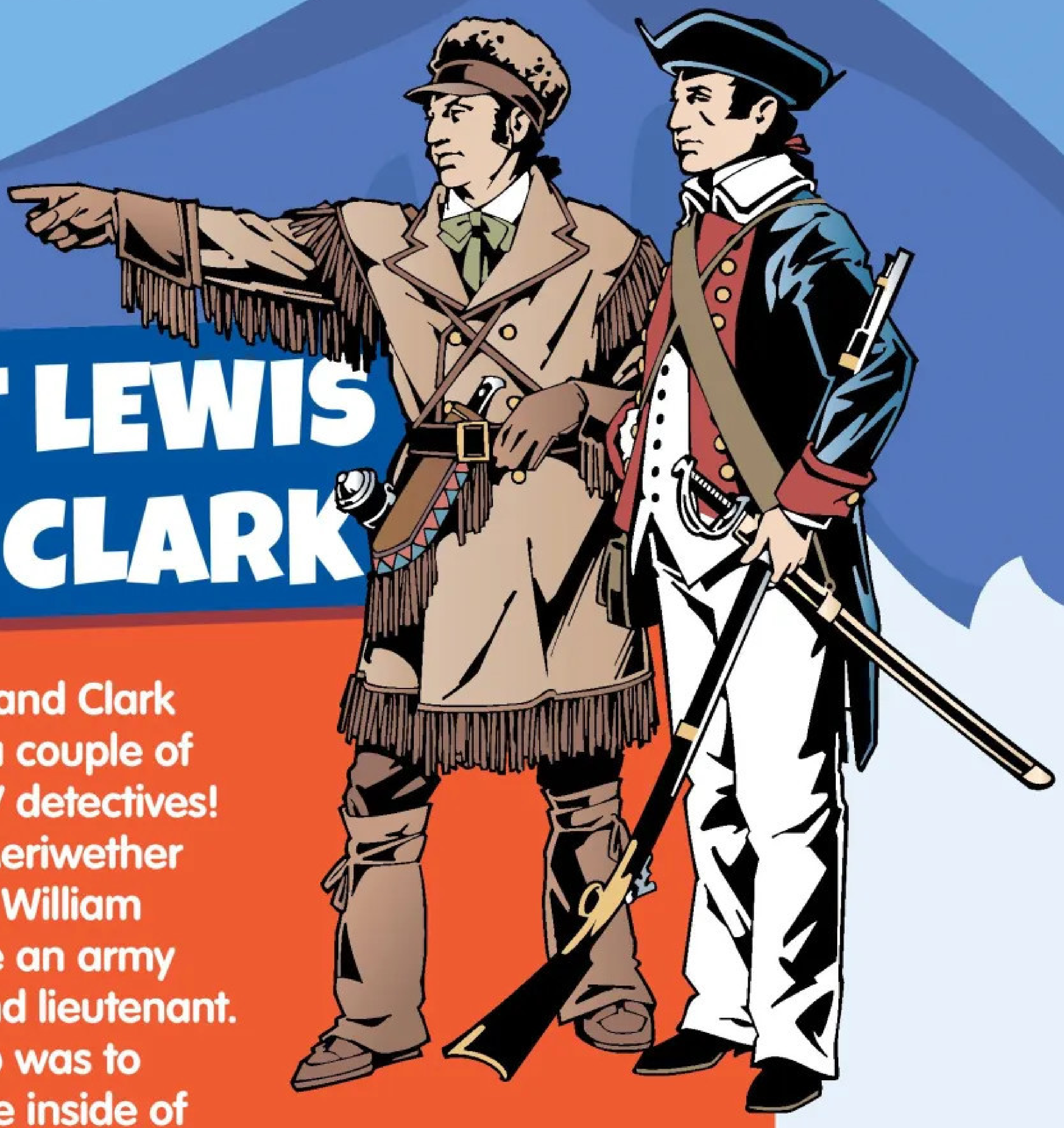
Polo ensured that countries in the western part of the world could understand more about those in the east. Battuta showed that the Muslim countries were actively trading around the Red Sea, Arabian Sea and Indian Ocean.

Darwin changed the way that we see organisms and ourselves with the idea of evolution through natural selection. Bly proved hugely inspirational not only to women, but journalists too. She proved that anyone can do anything if they really want to do it.

But they were not the only land explorers. Even on these pages, you're going to learn about some more awesome individuals and teams. What's more, people haven't stopped exploring lands across the world, either!

Men and women are still climbing mountains and carrying out scientific expeditions. They are also seeking to map areas such as Vale do Javari in Brazil, which is a region the size of Austria and home to 14 non-contacted Amazon tribes. Some are even seeking to go below the Earth by exploring deep caves. Who knows what future explorers will find?

MEET LEWIS AND CLARK



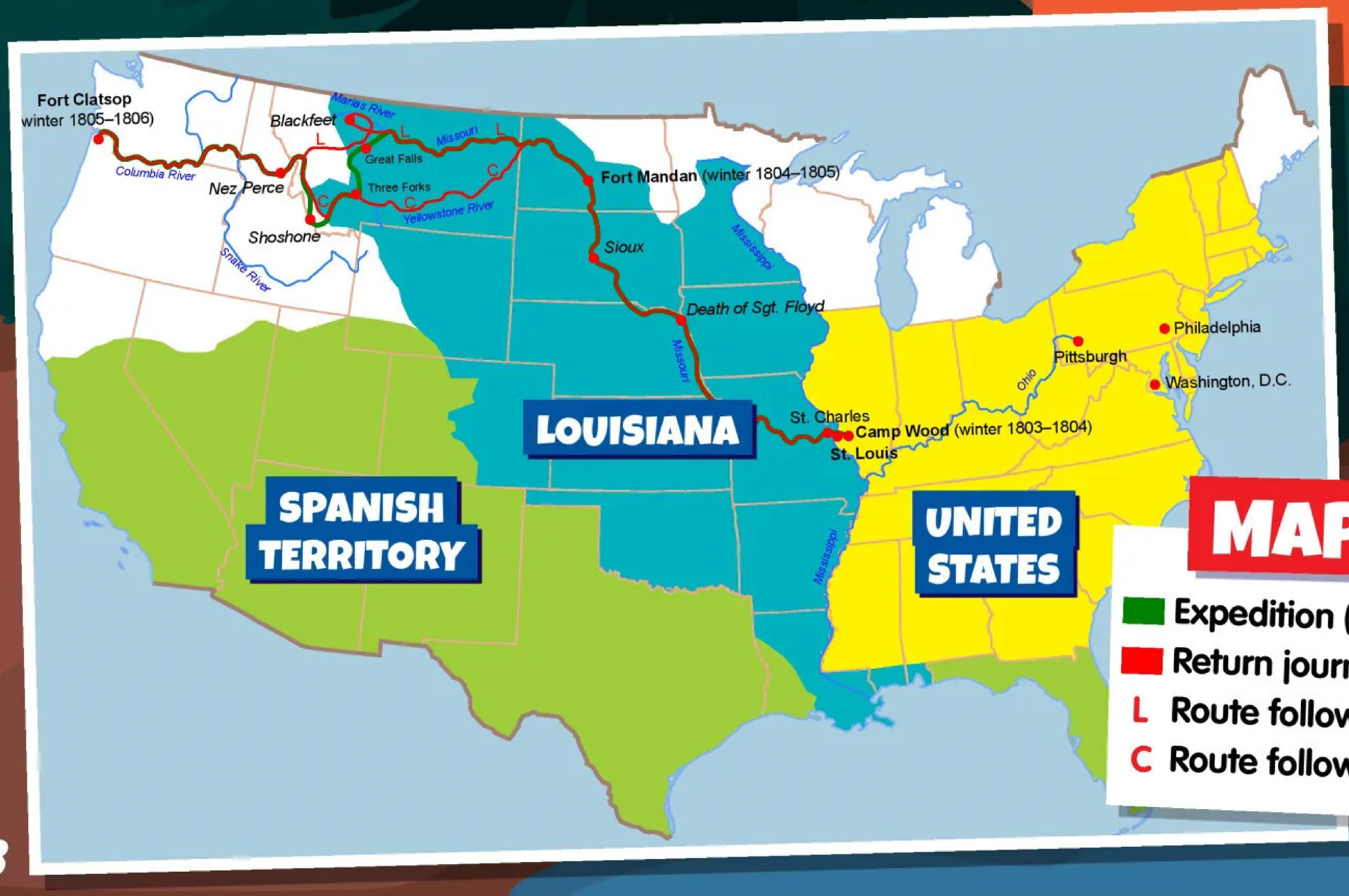
No, Lewis and Clark were not a couple of intrepid TV detectives! Instead, Meriwether Lewis and William Clark were an army captain and lieutenant.

Their job was to explore the inside of North America – a massive area of land to the west that the United States had bought from France in 1803.

President Thomas Jefferson had wanted to open trade with the tribes who lived there, so Lewis and Clark (along with a expedition party of 45 people) made the journey the following year.

It was harsh. The weather was bad and the ground was hard to travel across. But they were helped by a Native American woman called Sacagawea, and they travelled 8,000 miles.

As well as mapping the area and identifying dozens of animals and plants, they persuaded most of the tribes to trade. The trip was a huge success.


Fort Clatsop
winter 1805–1806)
Blackfeet
Marias River
Missouri
L
C
Great Falls
Three Forks
Yellowstone River
Columbia River
Nez Perce
Shoshone
Snake River
Fort Mandan (winter 1804–1805)
Sioux
Mississippi
Death of Sgt. Floyd
Missouri
St. Charles
Camp Wood (winter 1803–1804)
St. Louis
Ohio
Pittsburgh
Philadelphia
Washington, D.C.
LOUISIANA
SPANISH TERRITORY
UNITED STATES
Mississippi

MAP KEY

🟩 Expedition (1804-1805)

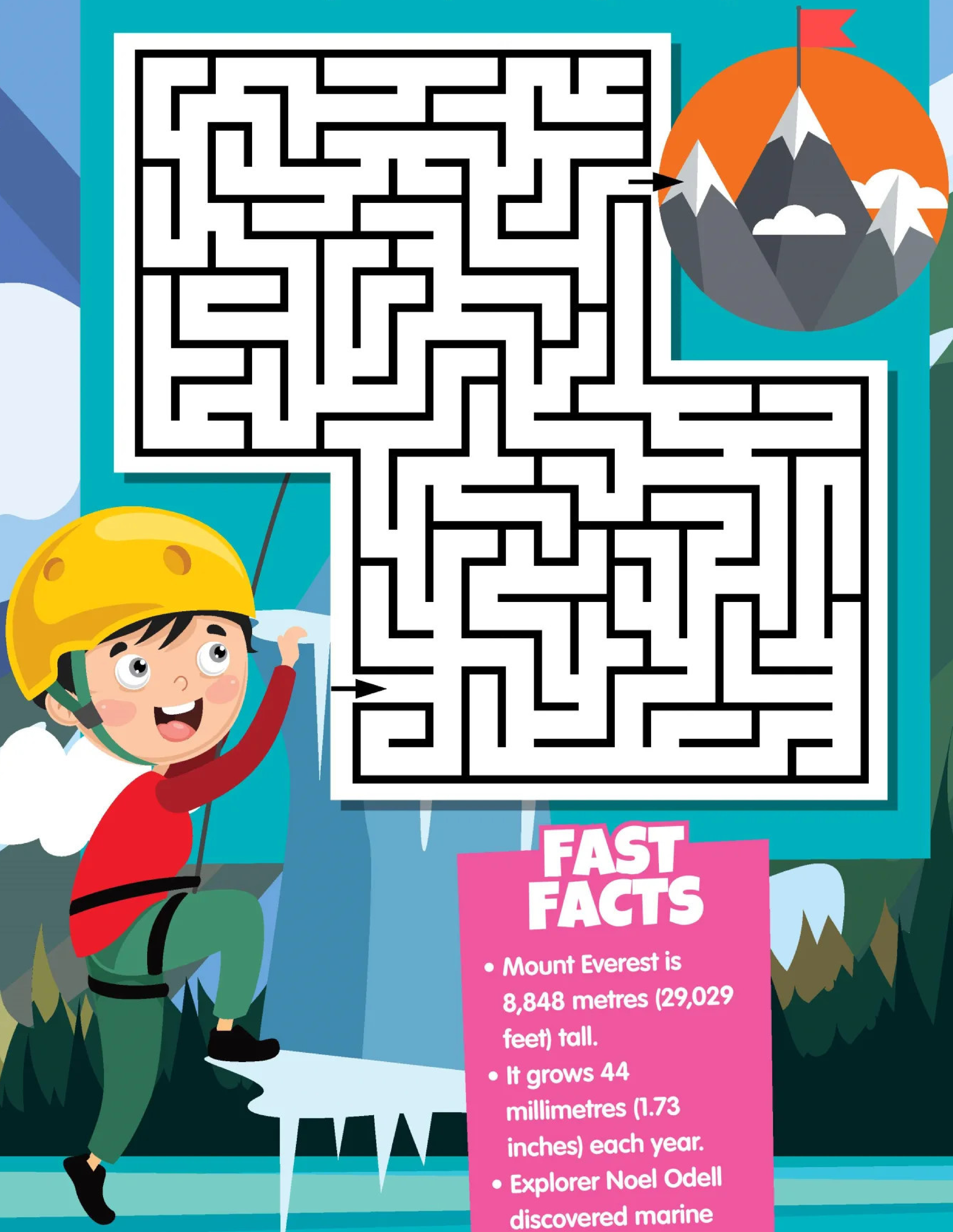
🟥 Return journey (1806)

L Route followed by Lewis

C Route followed by Clark

CLIMBING MOUNTAINS!

Explorer Edmund Hilary and Sherpa mountaineer Tenzing Norgay became the first climbers to reach the summit of Mount Everest! They got to the top on 29 May 1953. Japanese mountaineer Junko Tabei became the first woman to reach the summit on 16 May 1975. See if you can help this climber get to the top!



FAST FACTS

- Mount Everest is 8,848 metres (29,029 feet) tall.
- It grows 44 millimetres (1.73 inches) each year.
- Explorer Noel Odell discovered marine fossils there in 1924.
- At least 310 people have died while climbing Everest.

QUICK QUIZ

WHY NOT TEST HOW MUCH YOU'VE LEARNED SO FAR?

WHAT WAS THE TRADE ROUTE FROM EUROPE TO ASIA CALLED?

A: Europa Way
B: Silk Road
C: Asian Avenue
D: Spice Valley

PEOPLE KNOW ABOUT MARCO POLO'S TRAVELS BECAUSE HIS STORIES WERE:

A: Published in a book
B: Carved into trees
C: Hidden in his shoes
D: Sent by pigeon

WHEN IBN BATTUTA WENT BACK HOME, WHAT DID HE DISCOVER?

A: Someone had already made the same trip
B: All his possessions had been stolen
C: His parents had died
D: He was infected with plague

DARWIN SAW THE GALÁPAGOS AS:

A: A great holiday destination
B: Somewhere really boring
C: A place to store his beetles
D: A living laboratory

WHAT WAS NELLIE BLY'S MAIN JOB?

A: Journalist
B: Hot-air balloon aeronaut
C: Professional gambler
D: Postal worker

ANSWERS: B, A, C, D, A.

© Getty Images

END OF CHAPTER: PUZZLES

MASTER OF DISGUISE...

To enter the holy city of Mecca, Sir Richard Burton knew he needed to be a Muslim, but he wasn't. He was a Christian, so he had to come up with a cunning plan. The explorer's idea was to wear a disguise, and it worked. He survived the trip, entered Mecca and wrote about his experience.

... AND A TALENTED TALKER

Burton also understood at least 26 languages. He translated classical literature. including *One Thousand And One Nights* (which is also known as *Arabian Nights*). This is the collection that includes stories about Aladdin, as well as Ali Baba and the Forty Thieves.

There are thousands of languages in the world today. How many can you list here?

Knowing different languages allowed Burton to speak to and understand many people around the world.

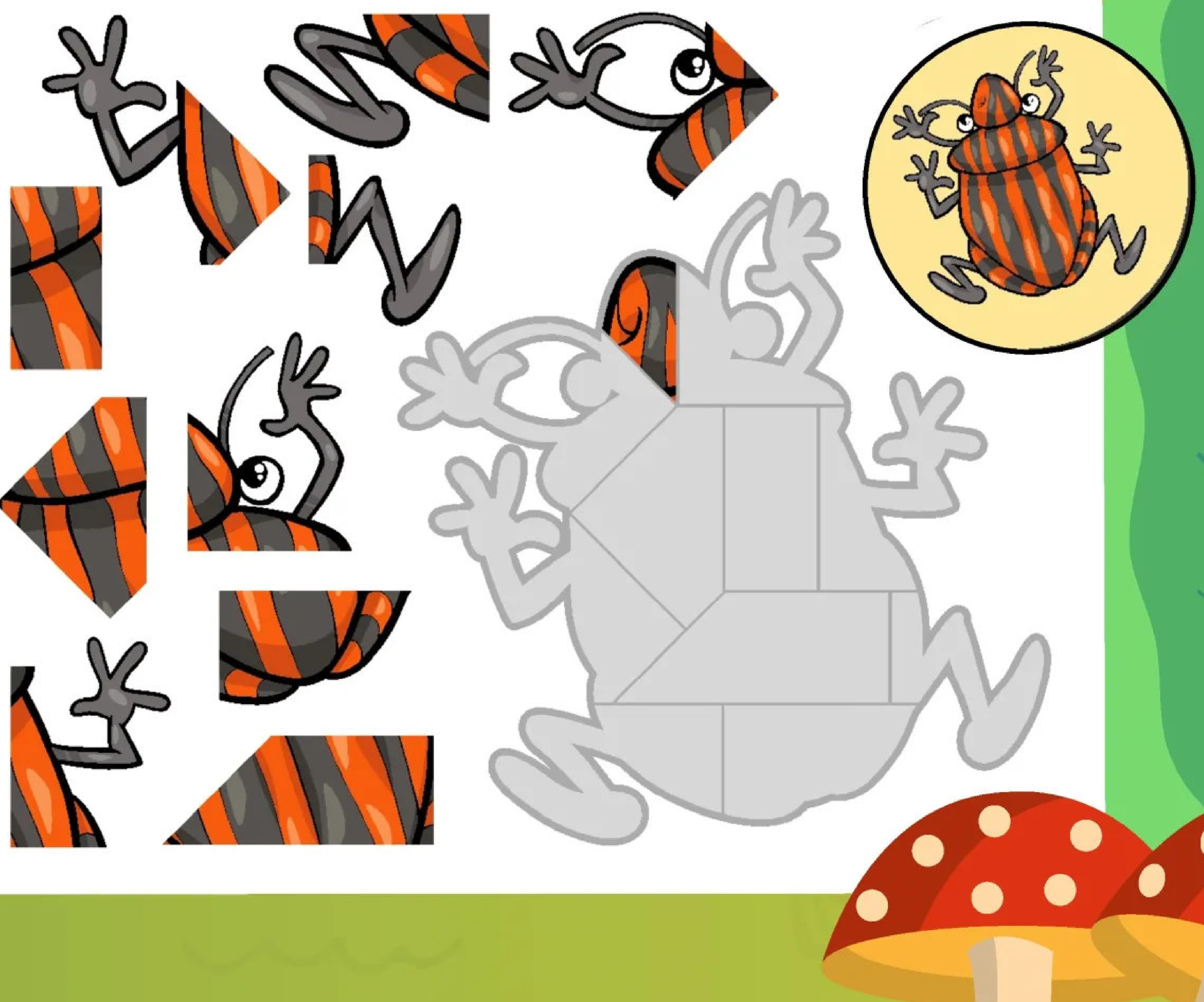
ANSWER: The languages Burton mastered were: English, French, Occitan, Italian, Romani, Latin, Greek, Saraiki, Hindustani, Sindhi, Marathi, Arabic, Persian, Pushtu, Sanskrit, Portuguese, Spanish, German, Icelandic, Swahili, Amharic, Fan, Egba, Asante, Hebrew and Aramaic.

SOMETHING IS BUGGING JOHN SPEKE!

Explorer Captain John Speke found the source of the Nile River on a three-year expedition that began in 1856. While he was there, the inside of his tent became infested with beetles (where's Darwin when you need him?).

When Speke woke up, he found he had a beetle stuck in his ear! The more he tried to get it out, the more it went in. He even poured melted butter into his lugholes to try and flush it out! Eventually, he grabbed a penknife and attempted to cut it to bits. But this damaged Speke's ear, and his face became infected.

The beetle came out six or seven months later. Speke saw a leg, a wing and other body parts stuck in the wax. Can you put the beetle back together again?



PLAY BEETLE AND BEAT YOUR FRIENDS!

Grab some friends and enjoy this fun party game. The idea is to draw a complete beetle before your opponents do the same!

WHAT YOU'LL NEED:

- Dice
- Paper
- Pens

ROLL THE DICE

First of all, roll your dice and note which number it lands on.

FIND THE PART

Now, look at the body part that matches that number.

ADD MORE PARTS

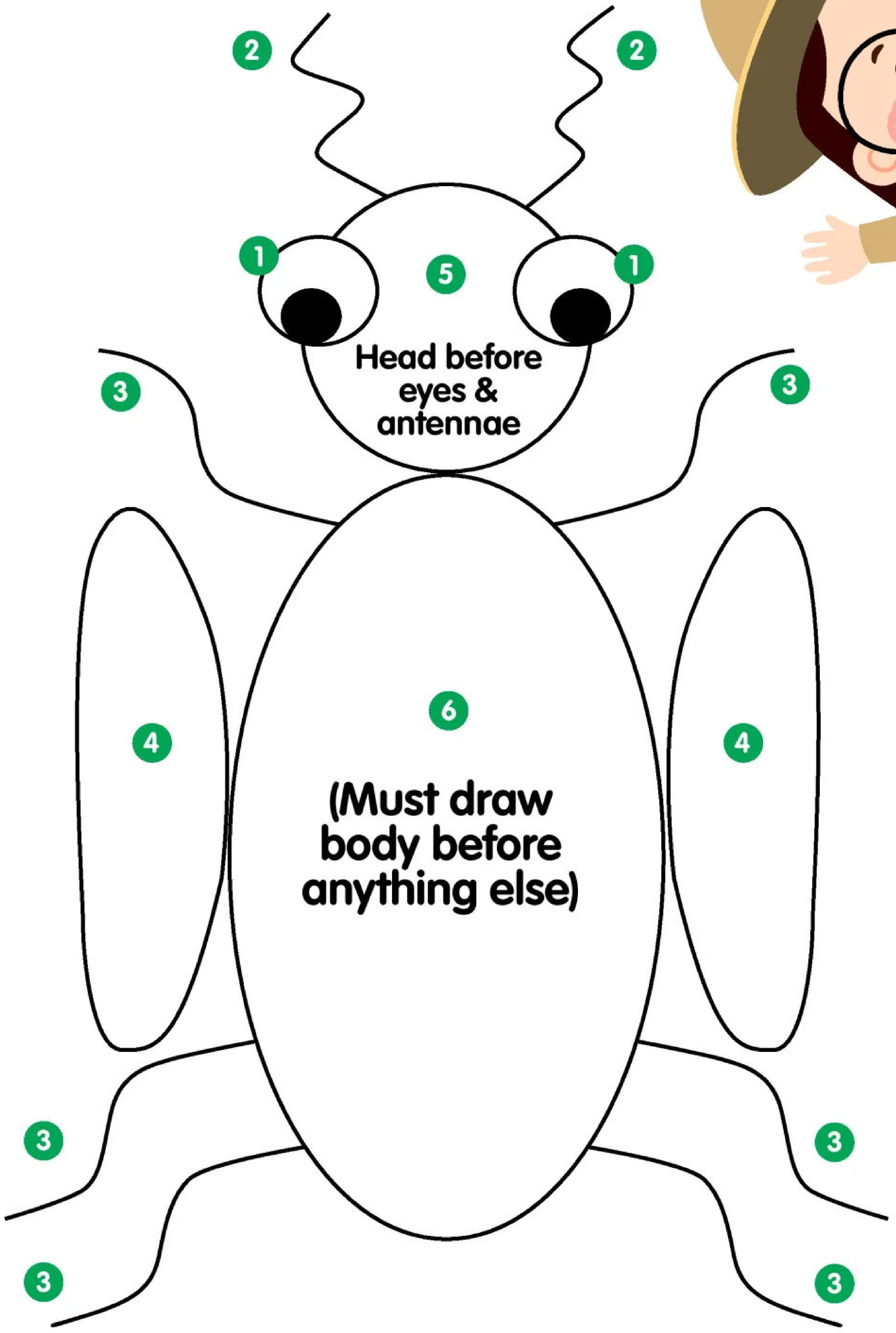
You must also draw a head before you can add eyes and the antenna.

ONE AT A TIME

Only one part can be drawn on each go (ie. you can only draw one leg at a time).

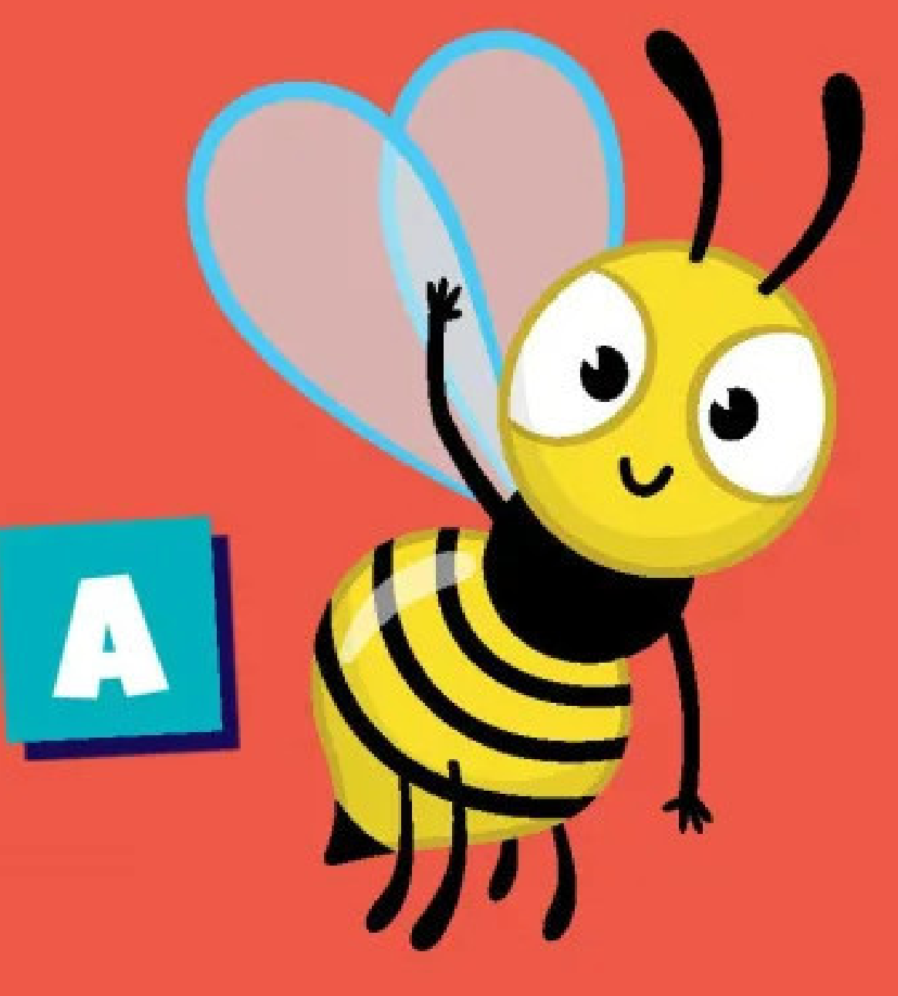
THE ENDGAME

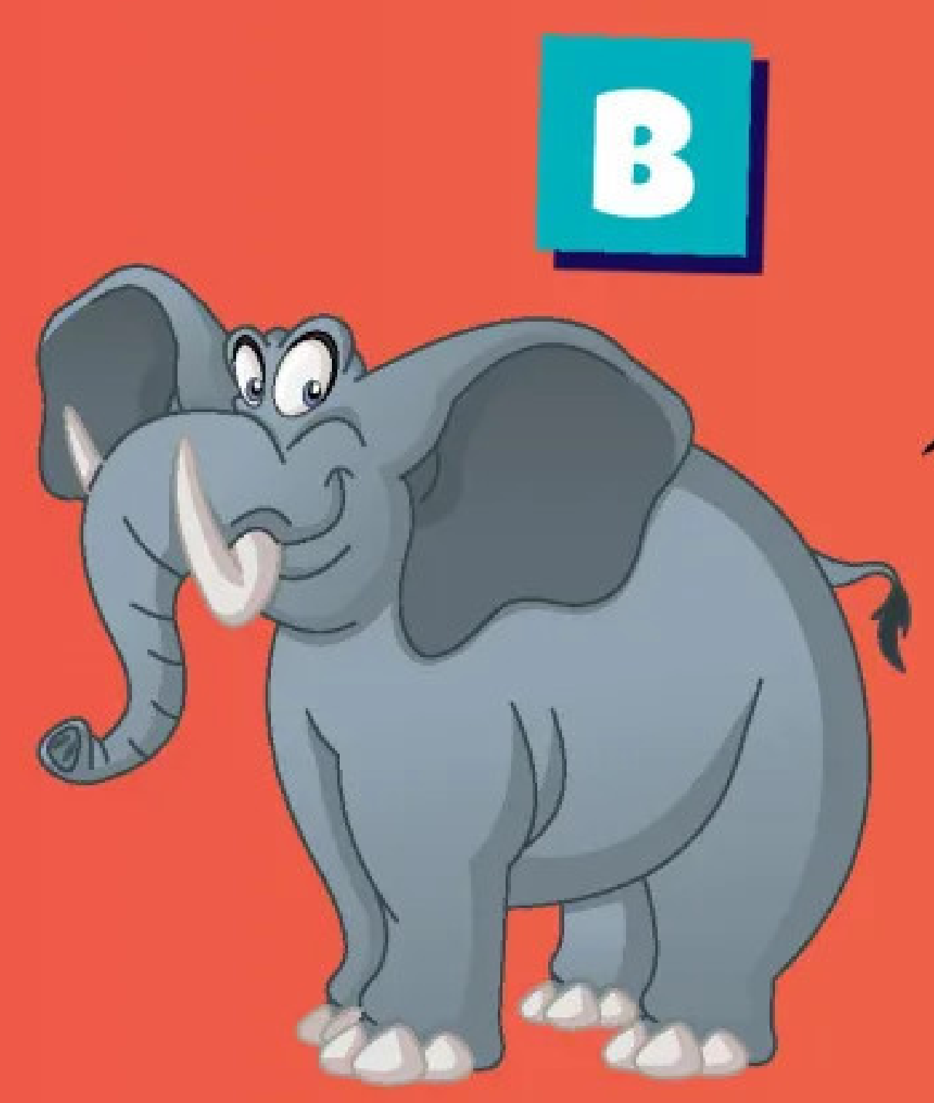
Once someone has drawn all of the parts – that's a body, head, two wings, six legs, two antennae and two eyes – that persons wins!

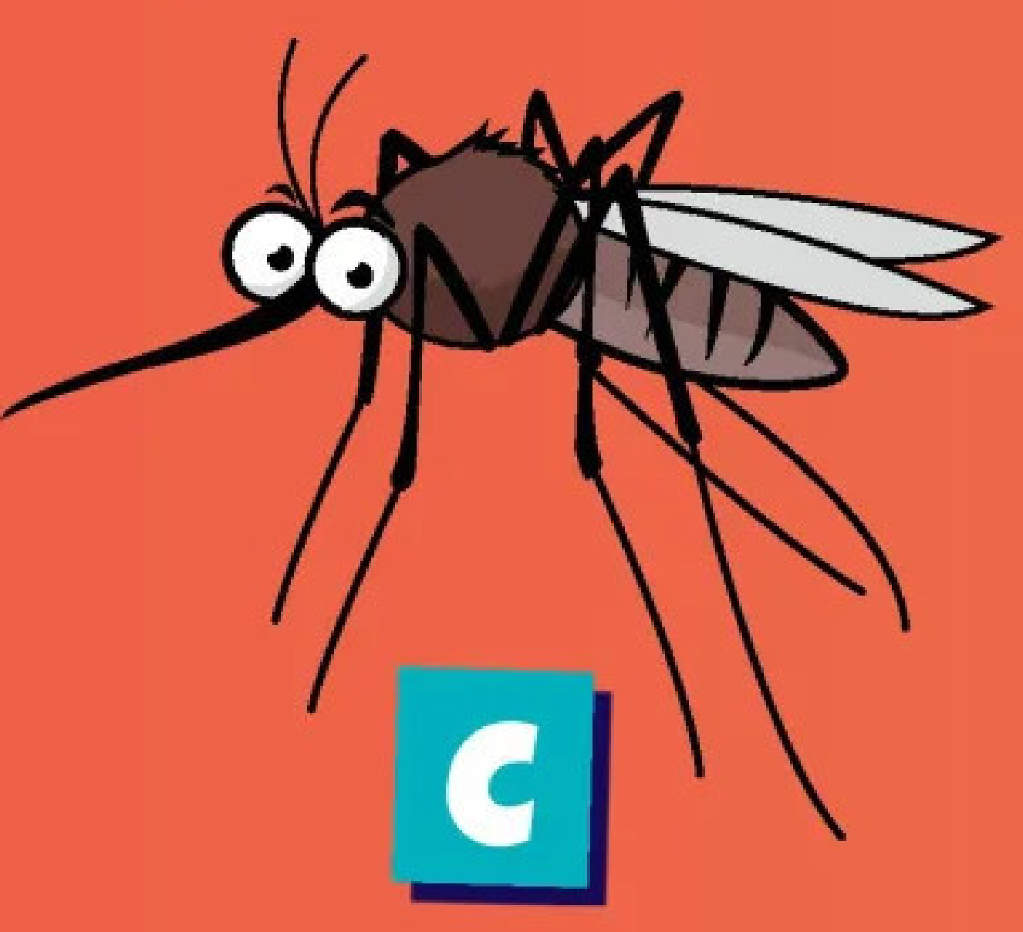

2
2
1
5
1
Head before eyes & antennae
3
3
4
6
(Must draw body before anything else)
4
3
3
3
3

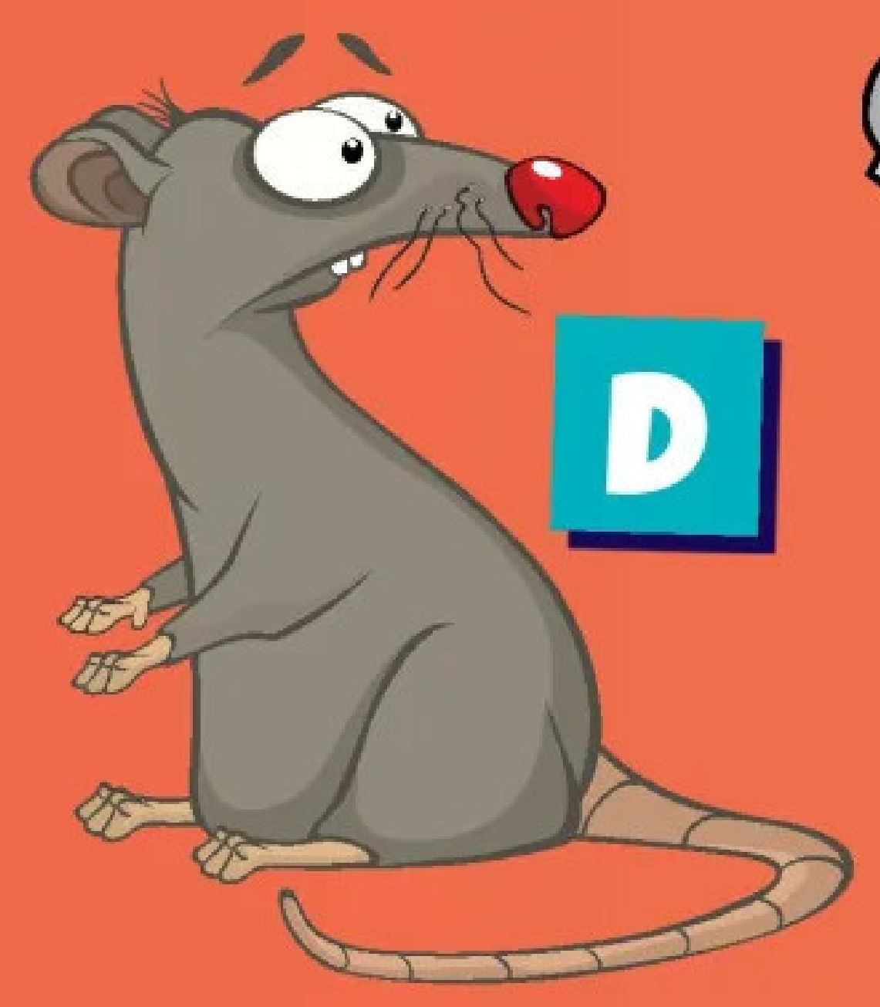
WHICH WAS WORSE?

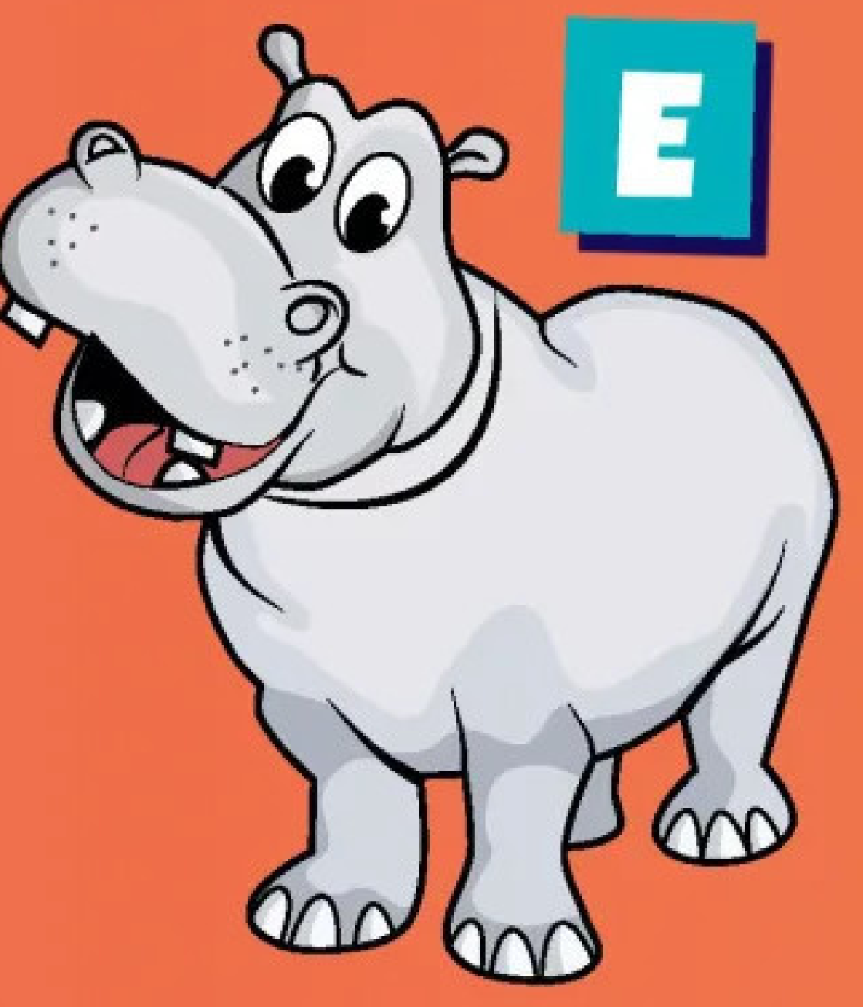
One of these caused the most trouble for explorers. Can you identify them all and work out which was worse?









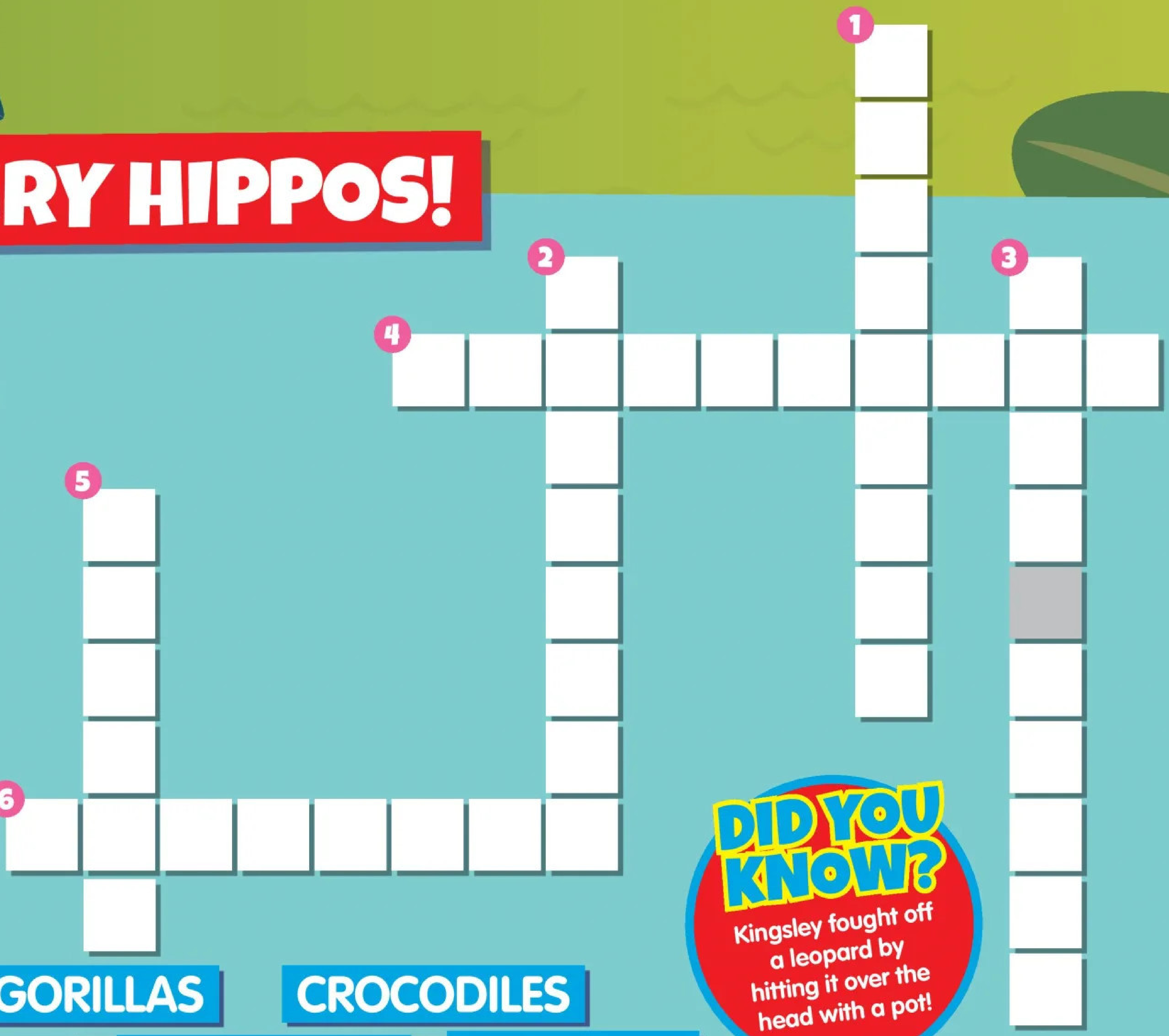


ANSWER: A. Bee, B. Elephant, C. Mosquito, D. Rat, E. Hippo. The Mosquito was worse. Many explorers were bitten by mosquitos and caught a serious – sometimes fatal – disease called malaria.

HUNGRY HIPPOS!

One night, Victorian explorer Mary Henrietta Kingsley stumbled upon a hippopotamus in her canoe when venturing across West Africa in the 1890s. During a talk about her travels, she revealed she got out of the potentially sticky situation by scratching the animal behind its ears using her umbrella!

Here are some more things Kingsley encountered on her travels. Can you fit the words into the crossword?



SPIKES

GORILLAS

CANNIBALS

CROCODILES

DEEP WATER

LEOPARDS

DID YOU KNOW?
Kingsley fought off a leopard by hitting it over the head with a pot!

ANSWERS: 1. Cannibals, 2. Gorillas, 3. Deep Water, 4. Crocodiles, 5. Spikes, 6. Leopards

ECK LIST
st
ency
dit cards
Travel insurance
Itinerary
Phrase book
Contact list
Guidebook

CREATE A TRAVEL JOURNAL

Chinese buddhist monk Xuanzang lived between 602 and 644 CE, and was among the first explorers to write about their travels.

When you next travel somewhere new, why not create your own travel journal or even a scrapbook of photos and drawings?
You could include:

- Tickets
- Stickers
- Maps
- Food menus or photos
- Foreign words you learn
- Details of people you saw
- Any flowers you like

You should also think about what you can write. To help you, why not think back to a recent day trip and fill in the blanks below? Be as descriptive as you can and explain why you felt that way!

① The best thing about my trip was...

② I was very surprised when I saw...

③ People were wearing...

④ The weather was...

⑤ I really enjoyed eating...

⑥ There was a funny moment when...

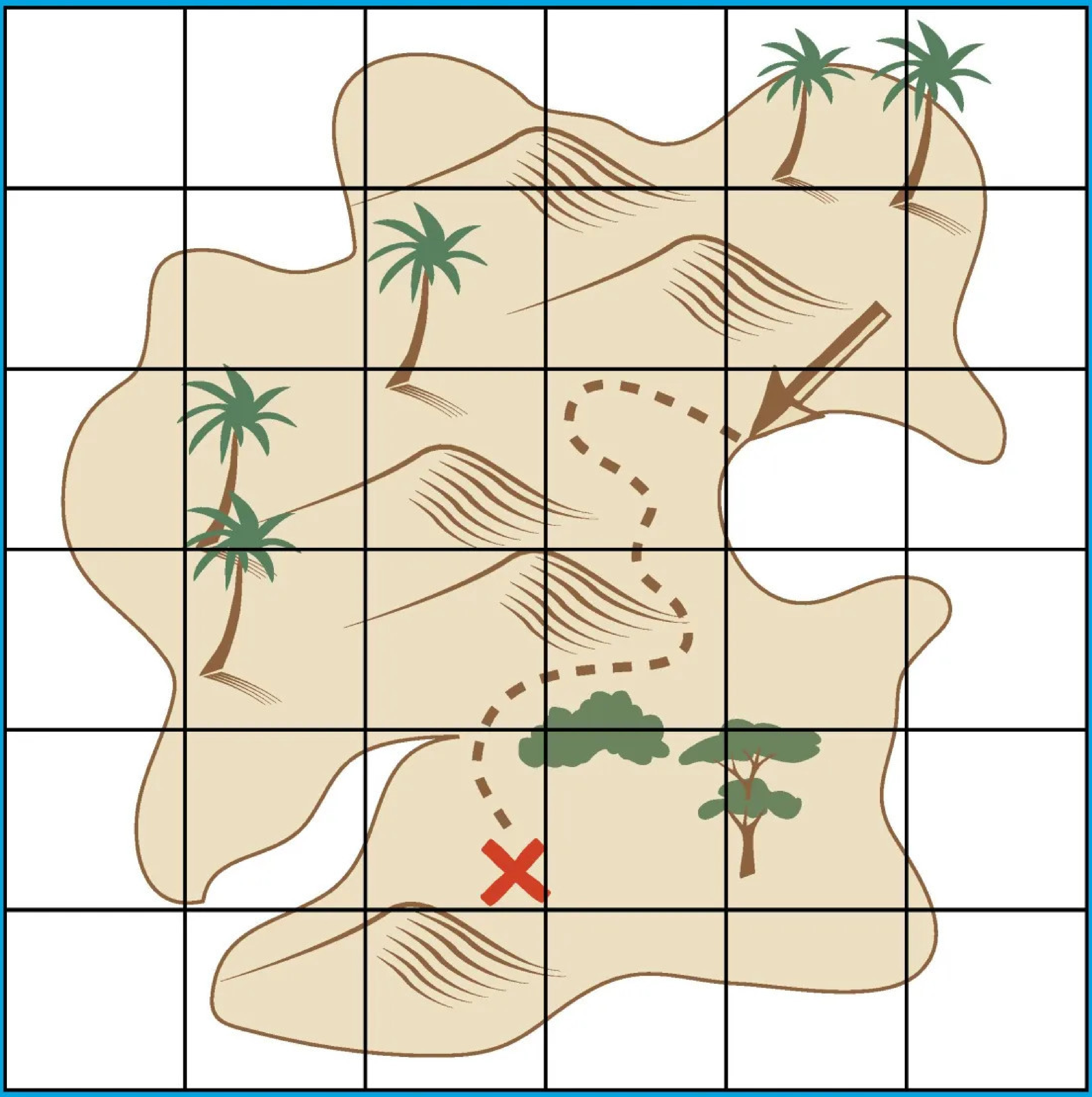
⑦ But I didn't like it when...

ITALY
Vineyard Resorts
FRANCE
Paris Romance

CREATE YOUR OWN MAP!

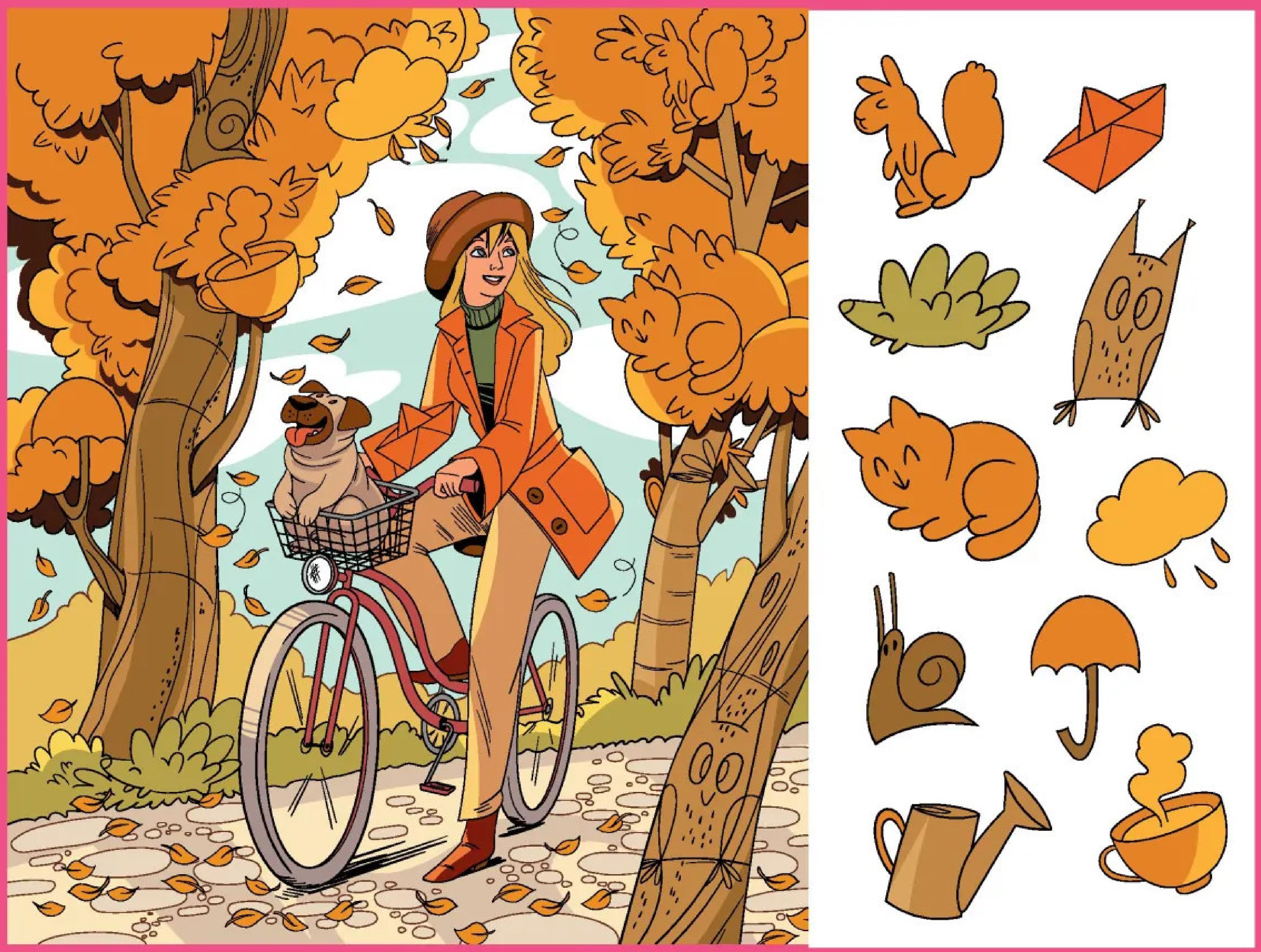
The study and practice of making maps is called cartography. It was an important job for many explorers. To create a useful map, you would need to draw to scale. You could, for example, ensure that every centimetre on paper matches one kilometre in real life. You also need to work out how detailed your map is going to be. Why not try creating a map of a garden, your school playground or even your bedroom?

Before you do, why not learn more about scale? The grid on the left is twice as large as the grid on the right. Can you accurately copy the map in the left grid so that it is half the size?



FIND THE HIDDEN OBJECTS!

In 1894 and 1895, Annie Londonderry got on her bike. She became the first woman to cycle around the world.



© Getty Images

EXPLORING BY AIR

When the Wright brothers invented and flew the first aeroplane in 1903, explorers began to consider the possibilities. They dreamed of being able to view the Earth from high, high above – much higher than in the hot air balloons that had been invented in 1783. They also realised that they would be able to reach far-flung locations with greater speed.

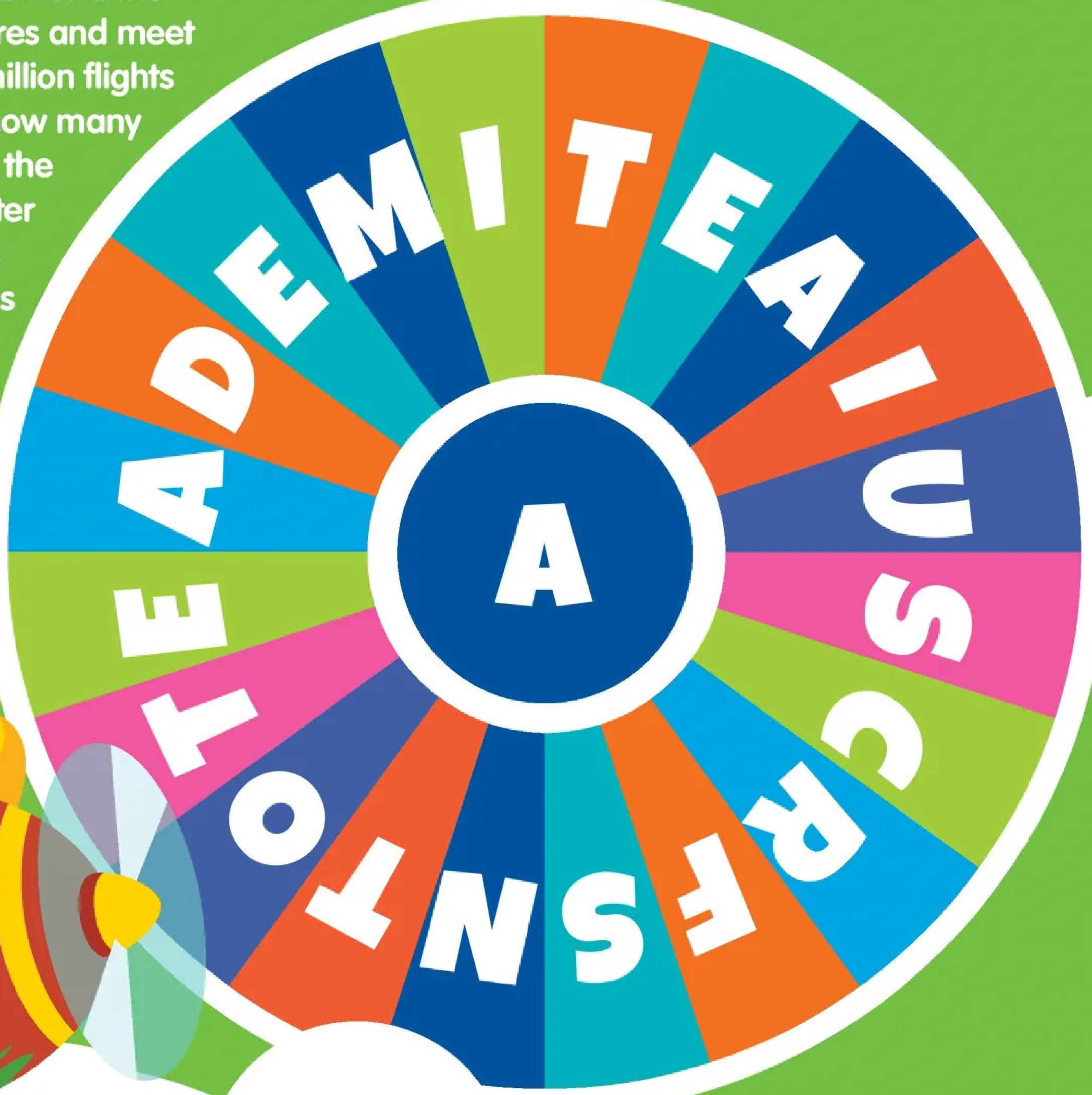
Although there were some mishaps (the first plane crash happened five years later), suddenly remote areas of the world could potentially be reached. As technology advanced, the planes also became better. They stopped being made out of wood and fabric, and manufacturers started to use metal.

By the 1920s, commercial air travel was becoming more popular, and explorers took advantage of the opportunity. It also became possible for explorers to quickly send messages from one country to another, because mail was being carried by air. As you can imagine, it was an exciting time for flight, but humans decided they wanted to go even further, and began to venture into space.

As you will discover, the United States of America and the Union of Soviet Socialist Republics (which grew out of Russia) raced to put a human on the Moon. Since then, a new wave of explorers have emerged, each one keen to unlock the mysteries of the Solar System and the wider universe.

WORD WHEEL

Planes allow billions of people to quickly fly around the world to visit new places, explore new cultures and meet a diverse range of people. As many as 40 million flights are made every year! Time yourself to see how many city and country names you can make from the letters in the word wheel – try to use the letter at the centre of the wheel as many times as you can. There is also a destination that uses *all* the letters. Can you work it out?



ANSWER: United States of America

FIVE THINGS YOU NEED TO KNOW ABOUT FLYING

THE DRY AIR AND CABIN PRESSURE ON AN AEROPLANE NUMBS A THIRD OF YOUR TASTEBUDS!

PILOTS EAT DIFFERENT MEALS TO REDUCE THE CHANCE OF THEM BOTH BECOMING SICK!

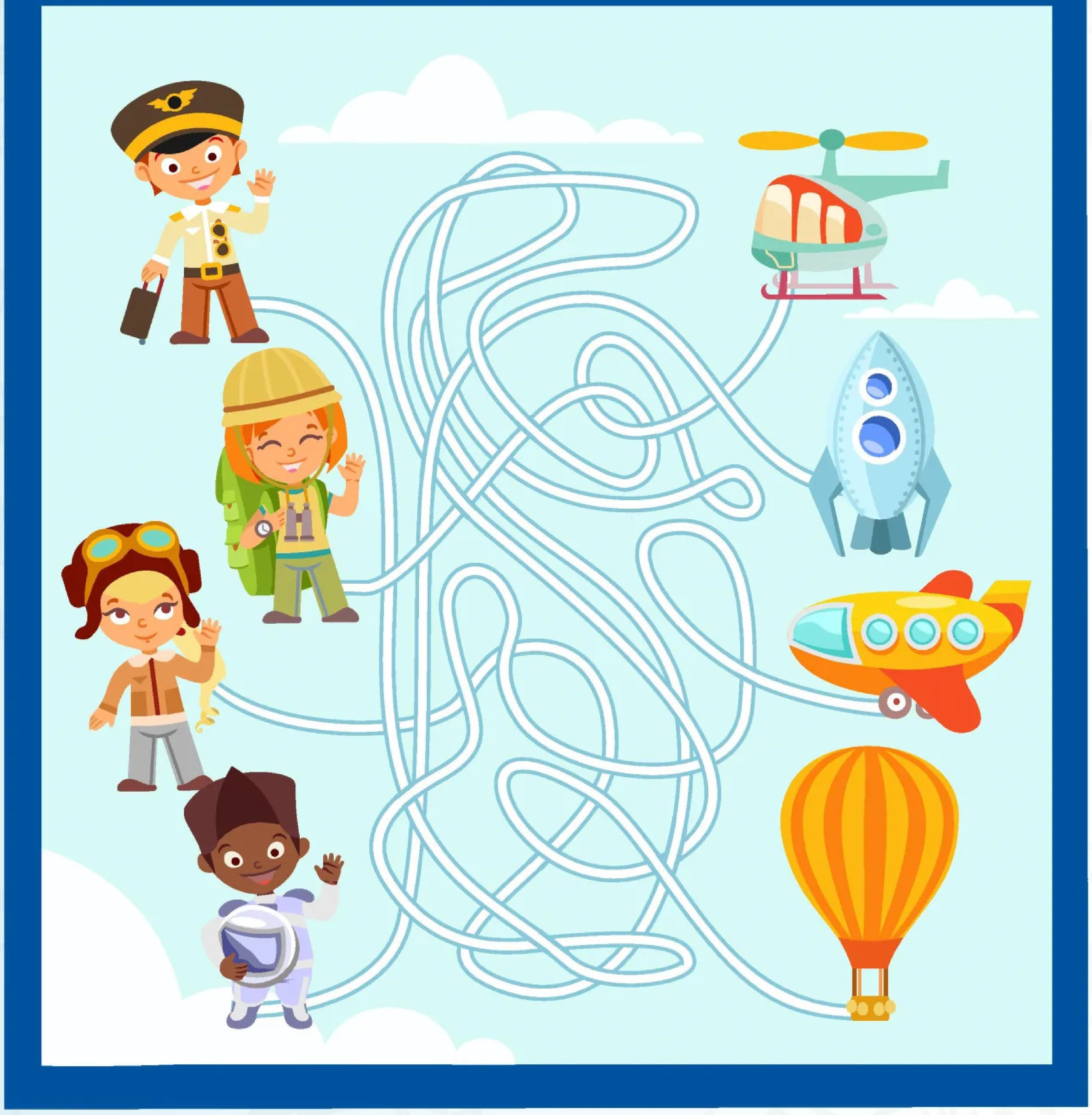
IF A PLANE IS STRUCK BY LIGHTNING, THE ELECTRIC CURRENTS JUST PASS THROUGH!

ROUND WINDOWS ON A PLANE CAN WITHSTAND REPEATED PRESSURE BETTER THAN SQUARE ONES!

THE DIRTIEST PLACE ON A PLANE IS THE TRAY ON THE BACK OF THE SEAT. YUCK!

TIME TO FLY!

Discover which mode of transport these explorers are going to be taking.



© Getty Images

YURI GAGARIN

Yuri Gagarin was born in Russia on 9 March 1934, and he grew up in a family of farmers. As a child, he survived – but suffered – during the Second World War, yet he flourished in maths and physics at school.

Since he had a love for aeroplanes, he learned to fly and served in the Soviet air force from 1957. He was so talented, he ended up flying further than anyone had ever gone before: in fact, Gagarin became the first human to travel into outer space!

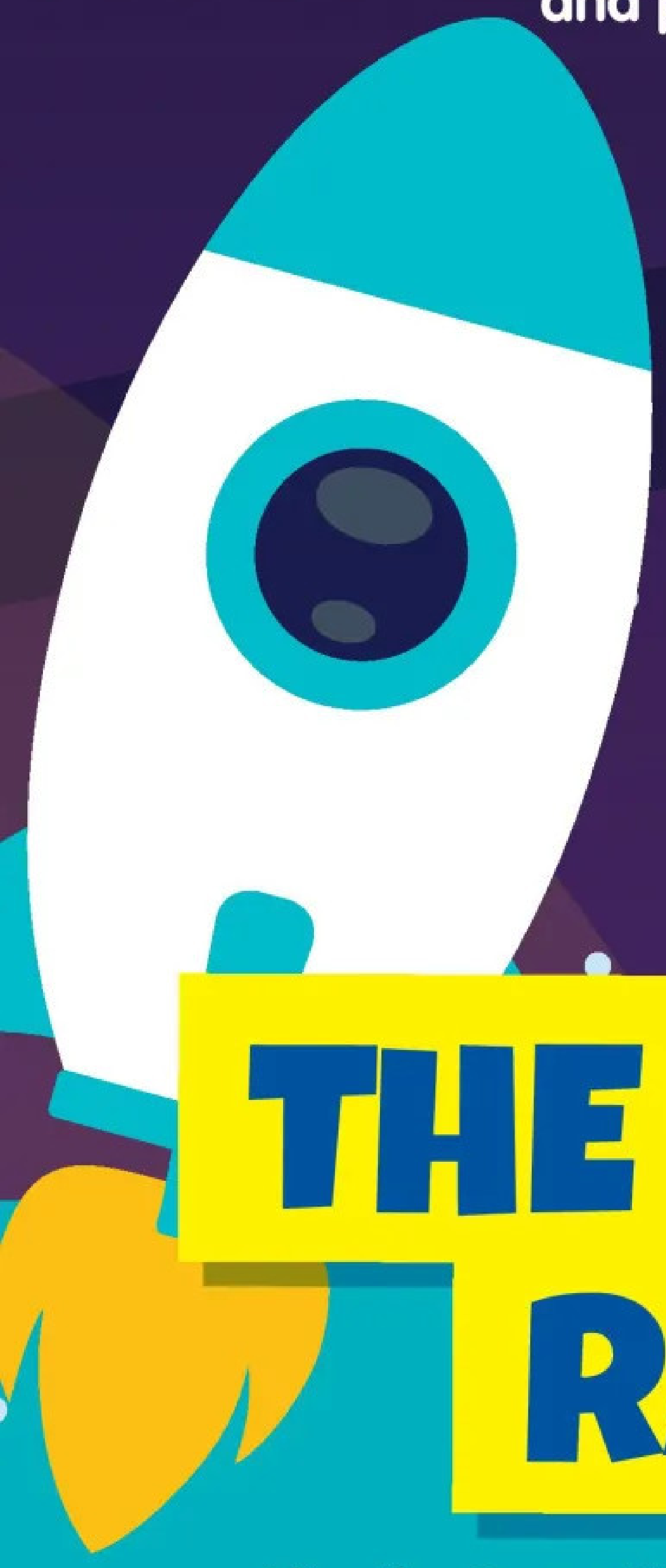
So how did that happen? When the Soviet Union – which is Russia today – wanted to send a person into space (and beat the Americans to it), it launched a selection process. A list of 154 qualified pilots was eventually put together and 20 of the men (including Gagarin) were approved and put to a vote.

Gagarin became one of the Sochi Six, which was the first group of cosmonauts (the name given to Soviet astronauts). He had to undergo physically and mentally tough training, but Gagarin and another cosmonaut called Gherman Titov were chosen to fly to space.

It helped that both men were short in height. This was important because the Vostok 1 spacecraft was small and the men needed to be less than 1.70 metres (5.58 feet) tall. Gagarin was 1.57 metres (5.2 feet) and Titov was 1.63 metres (5.3 feet) and that was just right.

Gagarin, who was 27 years old, got the chance to go to space first! The rocket launched from Baikonur Cosmodrome in Kazakhstan on 12 April 1961 at 9.07am Moscow time. Gagarin then left Earth's atmosphere and completed an orbit of our planet in one hour and 48 minutes. He reached a maximum height of 301km (187 miles) before descending, landing safely the same day at 10.55am.

After returning, he became a national hero, touring the world to talk about his achievement. He was also awarded the title of Hero of the Soviet Union by Soviet Union leader Nikita Khrushchev. As for Titov, well he went into space in August 1961, making 17 orbits and spending 25 hours away from Earth. Out of this world, eh?



THE SPACE RACE

After the Second World War, the Soviet Union and the United States became world superpowers. They were also fierce rivals. Both wanted to show that they were better than the other, and this included a race to create the best space technology and put a human on the Moon. The space race lasted between 1957 and 1969. This is how it happened...

Gagarin was short but he wasn't the smallest person ever to fly into space!

NANCIE CURRIE

HEIGHT: (152CM) 5 FT 0 IN

NATIONALITY: AMERICAN

MISSION(S): STS-57, STS-70, STS-88, STS-109

20 JUNE 1944

GERMANY LAUNCHES ITS V-2 ROCKET

The V-2 ballistic missile was developed by Nazi Germany. A vertical launch crossed the boundary of space.

1945

RUSH TO DISCOVER V-2 TECH

The Allies seized control of the V-2 rocket factory, but the Soviet Union wanted the secrets for themselves.

1953

USSR PLANS TO LAUNCH SATELLITE

The Soviets used the V-2 technology on longer-range rockets. They said the R-7 could launch a satellite.

4 OCTOBER 1957

THE SPACE RACE BEGINS

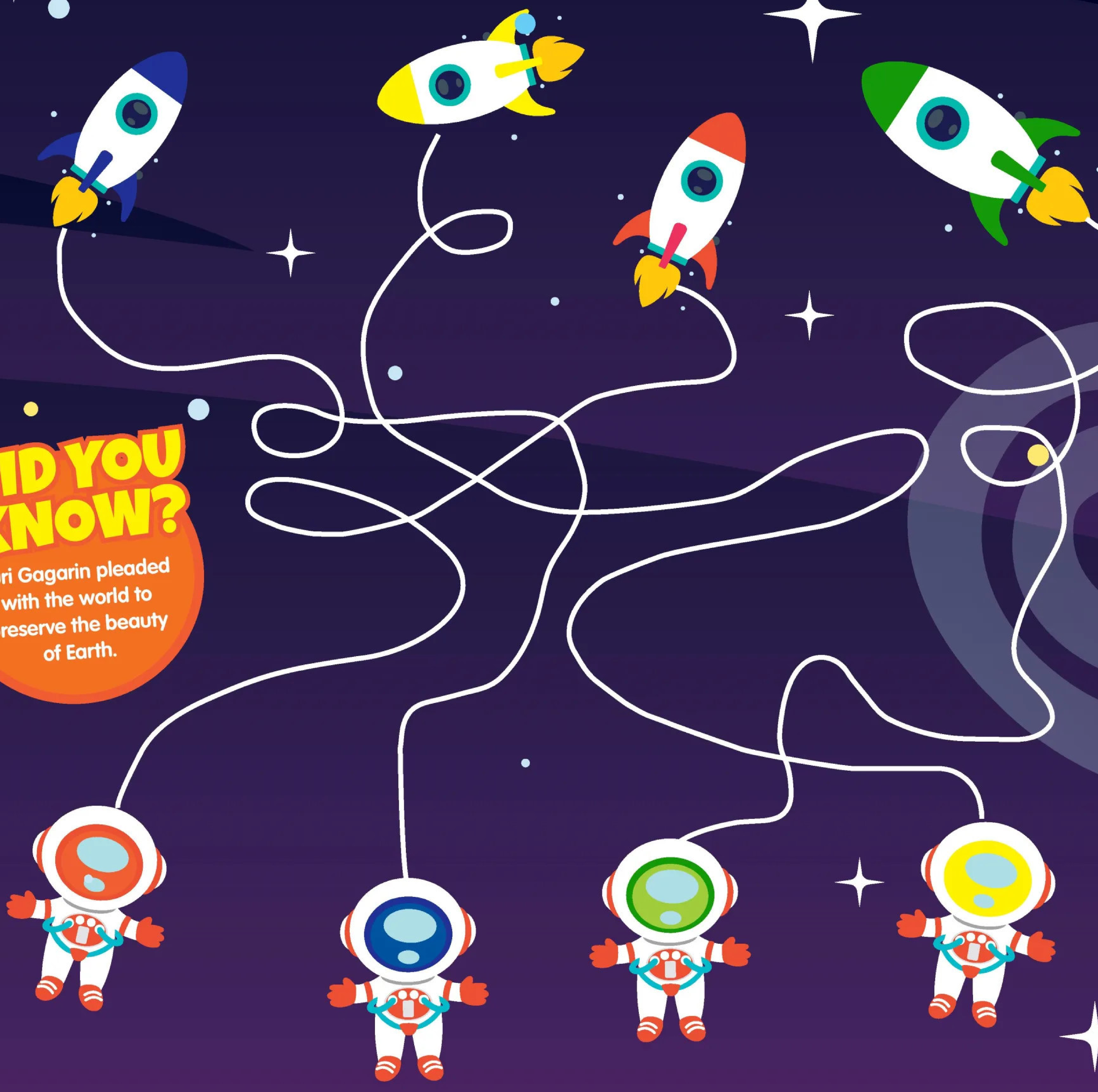
The USSR launched the satellite Sputnik 1. The US was worried that Russia could use the satellites to attack other countries.

FLY ME TO THE MOON!

These astronauts want to go to the Moon and other planets. Can you help them get back into their spaceships?

DID YOU KNOW?

Russian cosmonaut Anatoly Solovyev completed 17 spacewalks. He spent 82 hours and 22 minutes in space.



DID YOU KNOW?

Yuri Gagarin pleaded with the world to preserve the beauty of Earth.

3 NOVEMBER 1957

SPUTNIK 2 IS LAUNCHED

A month later, the USSR launched its second satellite, carrying a dog called Laika – the first live animal to go to space.

31 JANUARY 1958

US SATELLITE EXPLORER 1 LAUNCHES

America launched its first satellite, Explorer 1, which discovered the Van Allen radiation belt.

1 OCTOBER 1958

NASA IS FORMED

US president Dwight D. Eisenhower created the National Aeronautics and Space Administration. You will know it as NASA.

12 APRIL 1961

FIRST MAN INTO SPACE

Yuri Gagarin became the first human to go into outer space. Alan B Shepherd became the first American in space on 5 May.

NEIL ARMSTRONG

Watching the Soviets put a human into orbit in 1961 hurt the Americans. They were planning to fly their own astronaut into space, but they had been beaten. By the time astronaut Alan Shepard was rocketing towards the sky a few weeks later, it did not feel as groundbreaking as it should have done. The Americans were determined not to get beaten again.

US president John F Kennedy told politicians that the US should try to land a man on the Moon before 1970. The Americans created the Apollo program to help them achieve this goal, but it didn't always go well. The first Apollo mission with people on board (Apollo 1 on 21 February 1967) did not fly because a cabin fire during a test killed all three crew members, but NASA continued its work.

On 16 July 1969, Apollo 11 was launched by a Saturn V rocket from Kennedy Space Center in Florida. Neil A. Armstrong, Michael Collins and Buzz Aldrin were on board. Armstrong was a 38-year-old civilian research pilot who got his student pilot's licence aged 16. He had studied aeronautical engineering at university and he and his crew had trained hard for months for their lunar surface mission.

The journey took three days. Armstrong and Aldrin went aboard the Lunar Module and descended to the Moon. They landed on the rocky surface, and half a billion people watched live on TV as Armstrong climbed down a set of ladders and put his boots on the lunar surface. He said it was "one small step for man, one giant leap for mankind." The Americans had won. Aldrin followed Armstrong. They collected dust samples for study on Earth, and planted an American flag. In total, Armstrong walked 60 metres on the Moon's surface. He and Aldrin took photographs and conducted experiments before returning to Earth, splashing down in the Pacific Ocean on 24th July 1969.

EXPLORING THE MOON

Walking on the Moon isn't as easy as walking on Earth!

HAZARD!
Low pressure can cause dangerous nitrogen bubbles to form in an astronaut's blood.
Solution: After cabin pressure is reduced, astronauts breathe pure oxygen in their suits. This removes nitrogen.

HAZARD!
With no gravity and air, astronauts can go into an uncontrollable spin.
Solution: A propulsive backpack called SAFER (Simplified Aid for EVA Rescue) would provide power to push an astronaut back to base.

HAZARD!
The sun's glare is a major danger – looking at the sun can cause blindness!
Solution: The helmet's visor is coated with a thin layer of gold to filter out the sun's harmful rays.

HAZARD!
During a spacewalk, the temperature can get close to 500 degrees Fahrenheit.
Solution: Water-circulating tubing and cooling fans are placed inside spacesuits.

7 DECEMBER 1961

GEMINI PROGRAM

Project Gemini developed space travel techniques such as orbital docking and re-entry methods to land astronauts on the Moon.

16 JUNE 1963

FIRST WOMAN IN SPACE

Soviet cosmonaut Valentina Tereshkova was chosen from 400 applicants to become the first woman to fly in space.

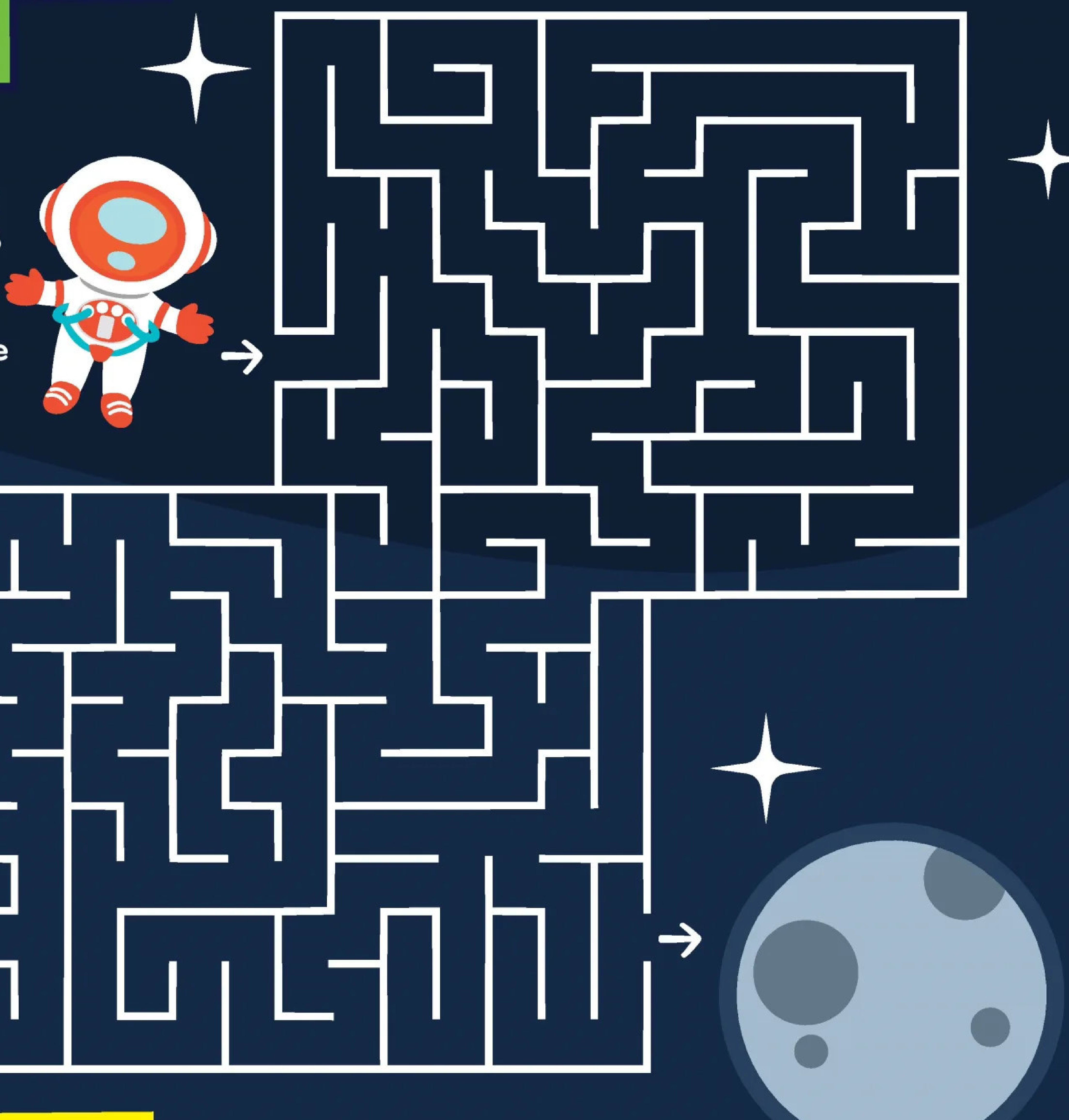
28 JULY 1964

FIRST CLOSE-UP MOON IMAGES

Ranger 7 became the first US spacecraft to share close-up images of the lunar surface.

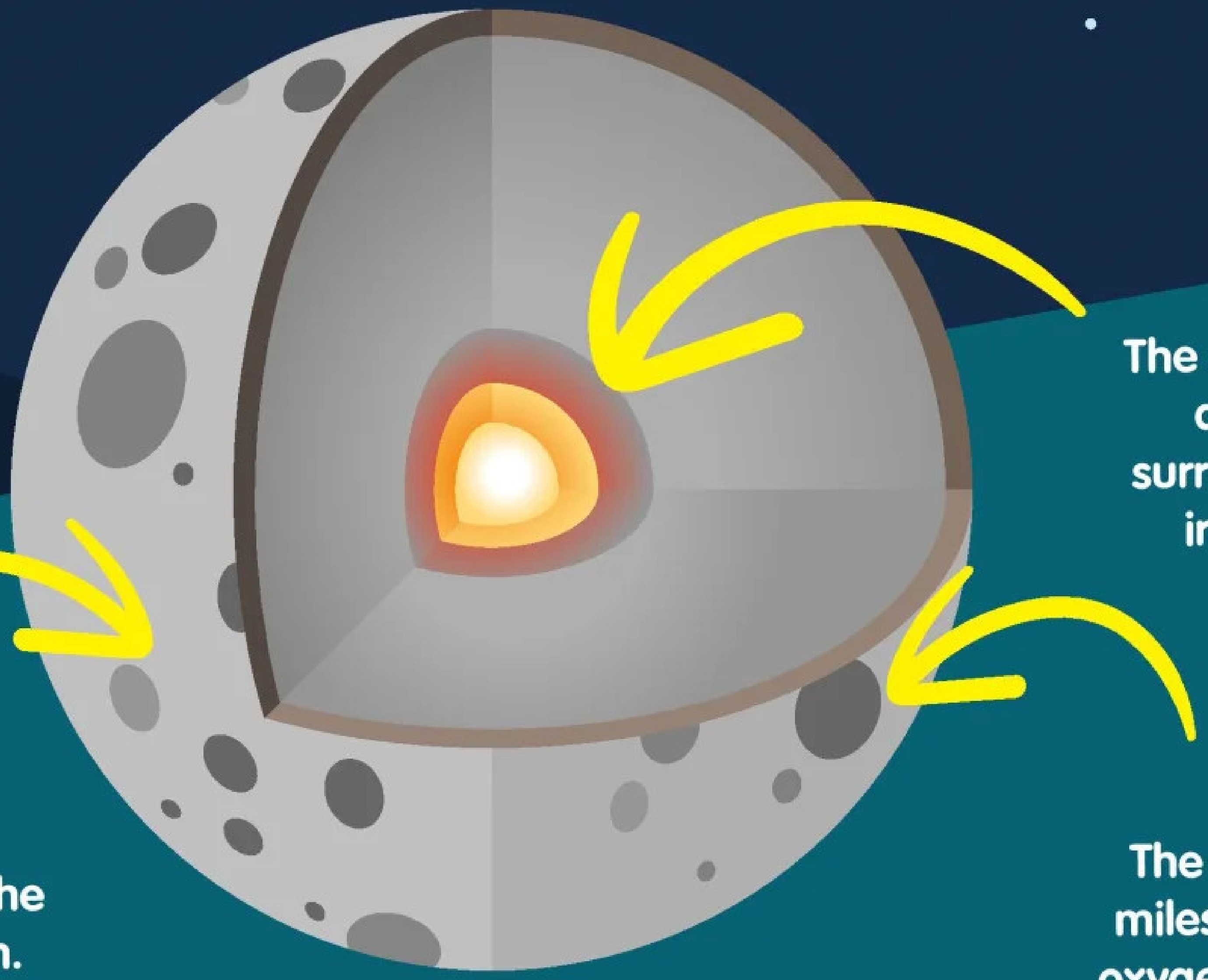
FIND YOUR WAY TO THE MOON

NASA is looking to send astronauts back to the Moon. An uncrewed spacecraft – Orion – was sent around the Moon and back again in 2022. US astronauts may be walking on the Moon by 2025, although it may be a little later. Can you find your way to the Moon in the meantime?



WHAT'S THE MOON MADE OF?

Clue: It's not cheese!!!



GRAVITY

The gravity on the Moon is just 17 per cent that of Earth.

TIME

A moon day is 27.32 Earth days while a year is 354 Earth days.

FORMATION

The Moon was formed 30-50 million years after the origin of our Solar System.

CORE

The core is made up of iron and sulphur and it is surrounded by a mantle of iron and magnesium.

CRUST

The Moon has a crust 31.25 miles thick and is made from oxygen, silicon, iron and more.

18 MARCH 1965

THE FIRST SPACEWALK

Alexei Leonov embarked on a 12-minute spacewalk during Vokshod 2. Ed White performed the US's first spacewalk on 3 June.

3 FEBRUARY 1966

LUNA 9 LANDS

Russia's Luna 2 had hit the Moon on 13 September 1959, but Luna 9 soft-landed. On 3 April, Luna 10 was the first satellite to orbit the Moon.

20 JULY 1969

FIRST MEN ON THE MOON

Neil Armstrong and Buzz Aldrin set foot on the Moon, watched by a TV audience of half a billion viewers.

CHARLES LINDBERGH

Spirit of St. Louis

Today, flying from the United States to Europe is no big deal. Millions of people make the journey every year, crossing the Atlantic Ocean on jumbo jets that fly at an altitude of more than 10,000 metres (33,000 feet) above the sea, but it hasn't always been an easy trip. Before the 1920s, nobody had ever flown non-stop between New York City and the French capital, Paris. So, to encourage pilots to try, a New York hotel owner called Raymond Orteig said he would give $25,000 to the first person to successfully complete the journey.

Many pilots failed – six even died. But when Charles Lindbergh heard about the competition, he wanted to give it a go. He loved planes when he was a child, and he learned to fly when he was 20 years old. He made his first solo flight in 1923 in Lincoln, Nebraska, USA, and he flew for the US Army from 1924.

To do this, he needed to raise money, so he spoke to businessmen in the city of St. Louis in Missouri, USA. He knew he needed an aeroplane that could fly him 5,790 kilometres (3,600 miles). This plane was built by Ryan Airlines in San Diego, California, and was called the Spirit of St Louis.

On 20 May 1927, Lindbergh took off from Roosevelt Field in Long Island, New York. As he flew, he encountered thick fog and he struggled to stay awake. He needed to hold his eyelids open to stop them from closing and he even opened a window to let in some cold air. But, after 33 and a half hours, he made it to Paris.

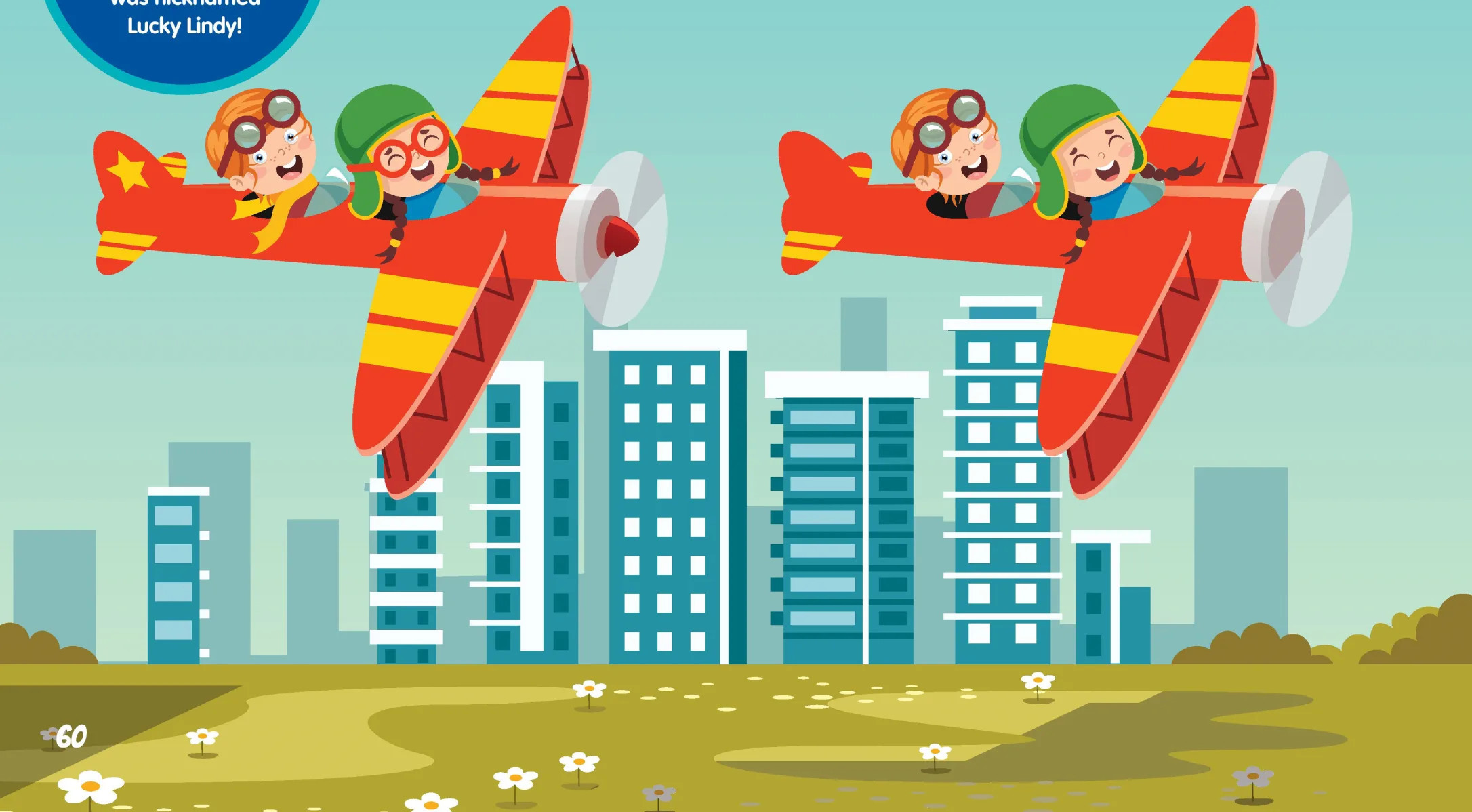
It was a huge achievement, and more than 100,000 people gathered at the airfield to welcome him. Lindbergh was also given a ticker tape parade when he arrived back in New York. As a result of his success, interest in flying soared, and Lindbergh became an international celebrity.

DID YOU KNOW?

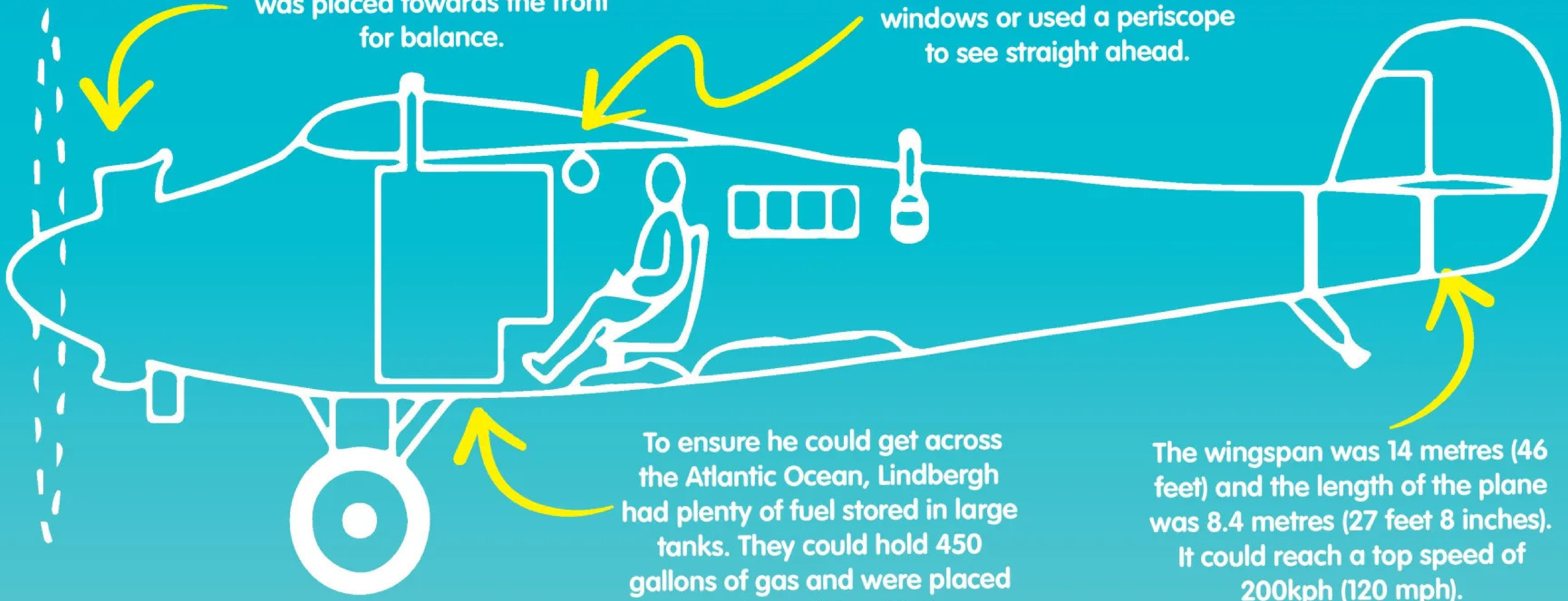
After his success, Charles Lindbergh was nicknamed Lucky Lindy!

SPOT THE DIFFERENCE

Charles Lindbergh has taken to the air, but can you find seven differences between these two planes?



SPIRIT OF ST LOUIS



The Spirit of St Louis was a single-engine monoplane. The Wright Whirlwind J-5C engine was placed towards the front for balance.

Lindbergh was not able to see through a front window. He either looked out of the side windows or used a periscope to see straight ahead.

To ensure he could get across the Atlantic Ocean, Lindbergh had plenty of fuel stored in large tanks. They could hold 450 gallons of gas and were placed in *front* of the pilot!

The wingspan was 14 metres (46 feet) and the length of the plane was 8.4 metres (27 feet 8 inches). It could reach a top speed of 200kph (120 mph).

WORD SEARCH

To reduce weight, the Spirit of St Louis didn't have the following things: radio, fuel gauge, parachute, lights, navigation equipment. But maybe you can find them in this word search...

I	Y	X	J	U	O	Q	E	M	E	D	T
Y	U	Z	K	A	W	S	T	G	Q	Y	Z
F	O	N	W	I	T	E	U	H	U	F	E
X	E	X	Q	H	M	U	H	M	I	A	G
W	R	U	G	R	G	A	C	K	P	U	U
H	V	I	A	X	M	L	A	J	M	J	A
Z	L	D	L	P	U	F	R	S	E	E	G
C	I	Y	J	L	H	Y	A	A	N	Y	L
O	M	W	D	G	B	A	P	M	T	B	E
N	A	V	I	G	A	T	I	O	N	J	U
H	F	K	U	K	O	X	T	W	M	H	F
I	K	K	Z	Y	J	O	W	N	T	H	N

NAVIGATION
PARACHUTE
EQUIPMENT
LIGHTS
RADIO
FUEL GAUGE

DID YOU KNOW?

Amelia Earhart also tried to fly around the globe in 1937, but she never returned. No one knows what happened to her.

QUEEN OF THE AIR

Amelia Earhart saw her first plane when she was 10 years old, but she only became determined to fly one when she attended an air show in Toronto, Canada, 12 years later. In 1928, she was invited to become a passenger on a second non-stop flight across the Atlantic Ocean. This departed from Newfoundland, Canada, taking 20 hours and 40 minutes to reach Burry Port in south Wales. In 1932, aged 34, she decided to cross the Atlantic again – this time on her own. She left Newfoundland, Canada and ended up in Northern Ireland just under 15 hours later. In doing so, she became the first woman to fly solo across the

ALOHA WANDERWELL

Aloha Wanderwell was an amazing adventurer who used her great skill with a camera to chronicle her journeys. Born Idris Galcia Welsh, she answered an advert placed by a man called Walter Wanderwell (who she later married) to join an expedition in 1922. She became part of his team when she was aged 16, driving a 1918 Ford Model T car around the world for five years.

As part of this trip, she used oxen to tow the car across rivers and mud flats in India, and she was nearly taken hostage on the Great Wall of China. She also released many documentaries, met Hollywood stars and travelled 380,000 miles across 80 countries. She became the first ever woman to drive around the globe!

When she was in Calcutta in India in 1924, Wanderwell met and filmed four aviators from the United States Army Air Service. They were attempting to become the first people to fly around the world (they succeeded!).

Wanderwell and her husband also embarked on another adventure between 1930 and 1931. They flew a German seaplane to Mato Grosso in Brazil, which is an area mostly covered by Amazon rainforest and wetlands.

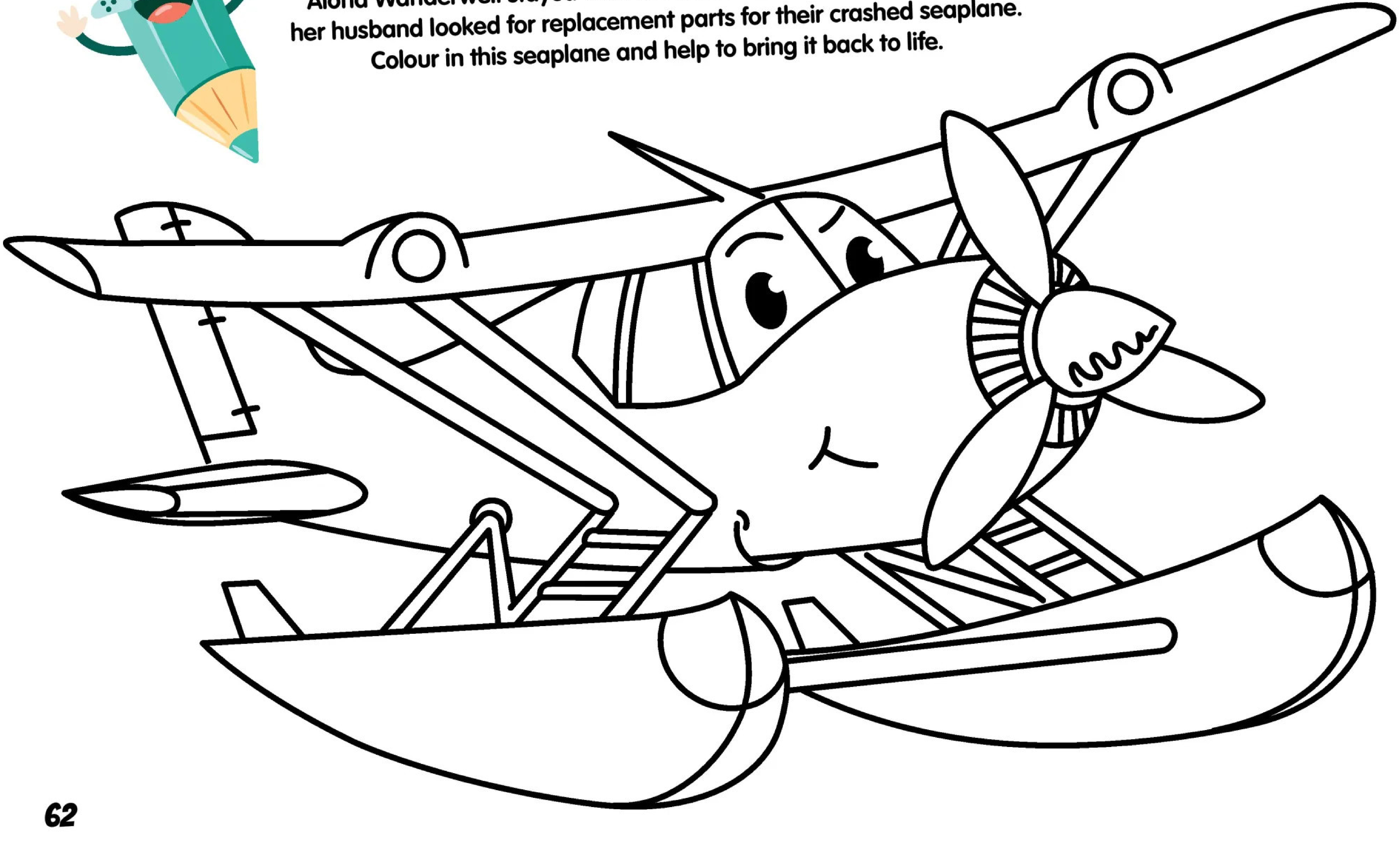
They were trying to find a British explorer called Lt Colonel Percy Fawcett, who had set off to look for an advanced and ancient city. Fawcett called this city Z, but he had gone missing in 1925 – many people believed he had either been killed or become lost and died of starvation.

When the Wanderwells' seaplane crashed in the jungle, they abandoned their attempts to find Fawcett. Instead, they became friends with the indigenous Bororo tribe.

While her husband went off to find new plane parts, Wanderwell filmed the tribe and created a series of films. One was called *Flight To The Stone Age Bororos*, the second was *Last Of The Borroros* and the third *The River Of Death*. It was the first time the tribe had ever been filmed.

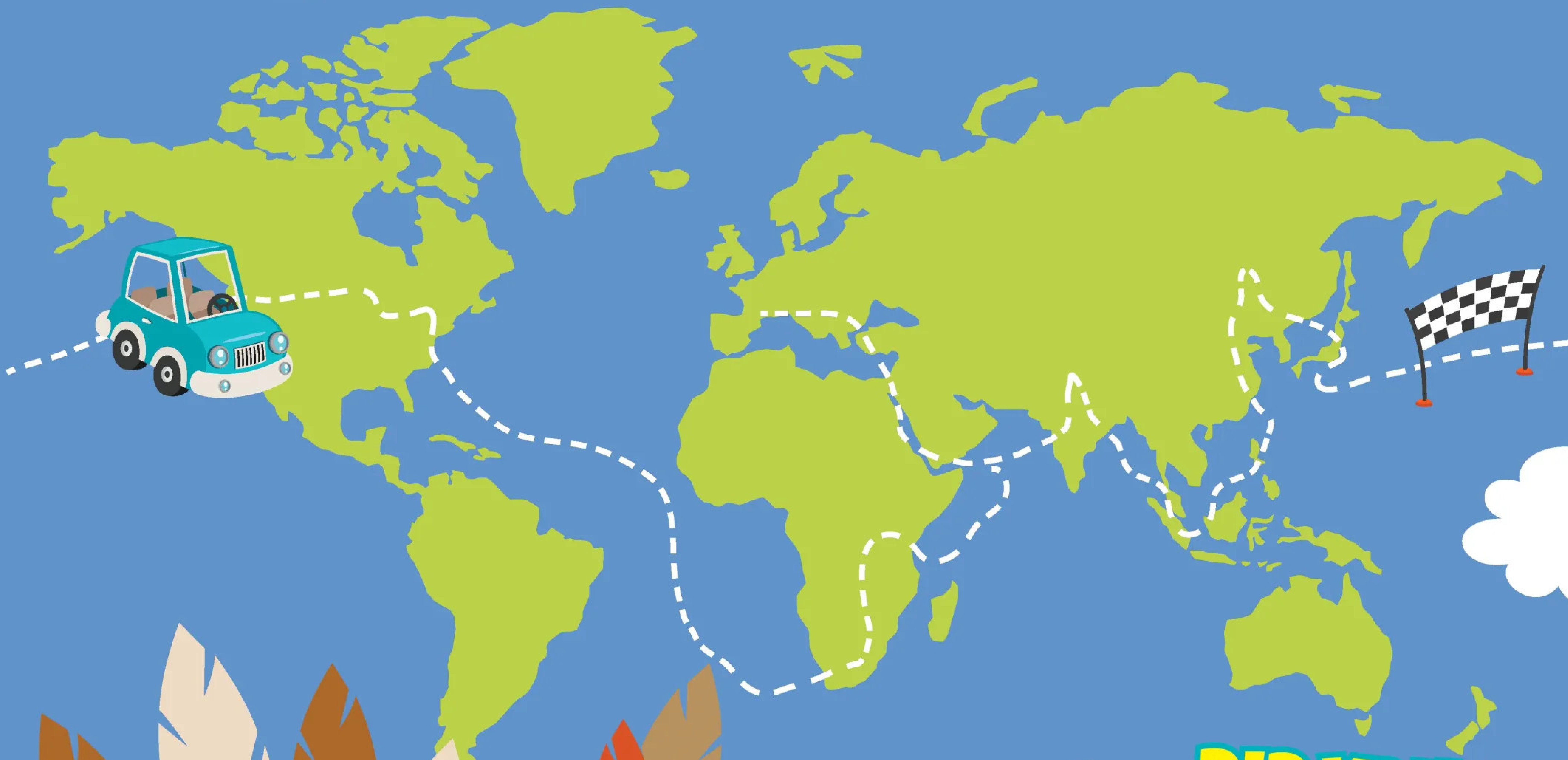
COLOUR ME IN!

Aloha Wanderwell stayed with the Bororo tribe for six weeks while her husband looked for replacement parts for their crashed seaplane. Colour in this seaplane and help to bring it back to life.



ARE WE NEARLY THERE YET?

This map shows the journey taken by Aloha Wanderwell in her Model T car between 1922 and 1927!



DID YOU KNOW?

Aloha Wanderwell was an accomplished filmmaker and she spent a long time editing (and re-editing) the 11 films she made. All of them are now in the archives of the Library of Congress and the Academy of Motion Picture Arts and Sciences in the USA.

WATCH THIS!

THE RIVER OF DEATH

SCAN WITH YOUR PHONE OR TABLET

www.bit.ly/3KlSj4B

ALOHA WANDERWELL
The World's Most Widely Travelled Girl
1922 – 1930

WHAT IS THE SOLAR SYSTEM?

The Solar System consists of the Sun and everything that goes around it. It includes eight planets and lots of moons, as well as thousands of dwarf planets, asteroids, comets and meteoroids. It is located in the Milky Way, which is just one of many galaxies in the universe.

END OF AIR

As you've seen, explorers began to take to the skies. First they flew many thousands of feet in the air on aeroplanes, then a select few went even further by travelling 383,400 kilometres (238,855 miles) to the Moon.

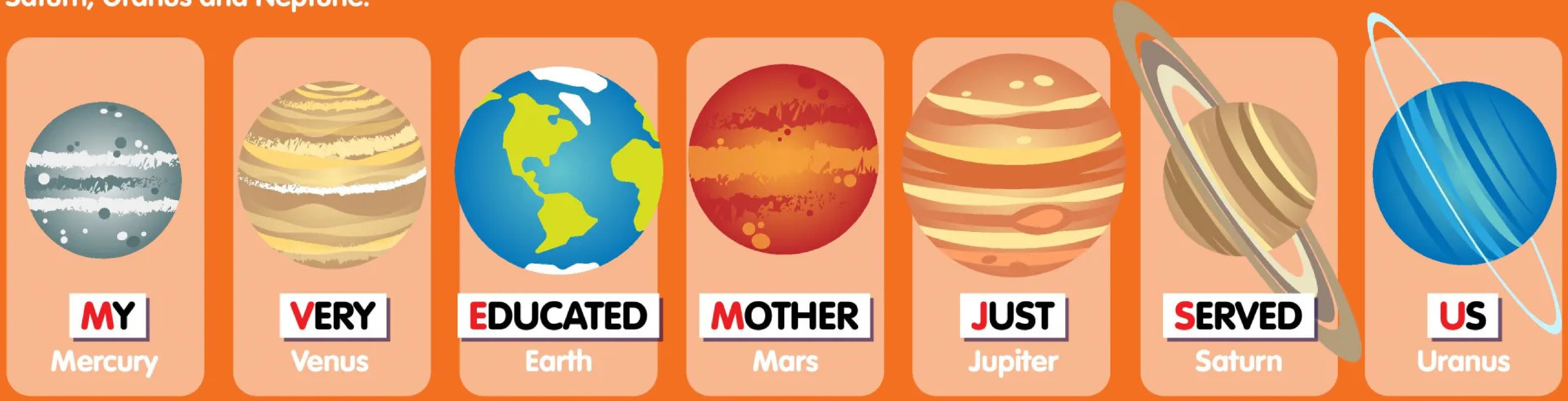
When they landed, astronauts were able to study the rocks and dust to learn more about the Moon. By doing this, they were able to discover that it wasn't actually made of cheese (that was an idea widely shared in a book called *The Proverbs Of John Heywood* in 1546!).

The astronauts could also take a look around for signs of life. Sadly, no one has found any aliens yet, but today's space explorers are still searching. Astronomers are also looking far beyond the Moon at planets and other celestial bodies inside and outside our Solar System. There are billions of planets (and moons) out there to explore, so it's going to take them a long, long time to do so.

Before we come back down to Earth in the next section, then, let's look forward to some of the discoveries that could be made as humans continue to explore space. We'll also look at the efforts being made by a growing number of robot explorers. It's time for one more take-off!

REMEMBER THE PLANETS!

This phrase is a great way of remembering the order of the planets of our solar system. The first letter of each word stands for Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.



HEY, WHERE'S PLUTO?

Before 2006, tiny Pluto was considered to be a planet. But when other small planets were found, it became known as a dwarf planet instead. In 2015, the New Horizons space probe flew past Pluto, allowing it to be viewed up-close. It sent back lots of cool photos!

NOODLES
Neptune

Can you create a better phrase? Why not have a think and write some ideas down here?

QUICK QUIZ

WHY NOT TEST HOW MUCH YOU'VE LEARNED SO FAR?

WHAT WAS THE NAME GIVEN TO THE FIRST GROUP OF COSMONAUTS?

A: Moscow Million
B: Sochi Six
C: Soviet Seven
D: Russian Dolls

WHO WAS THE SECOND PERSON TO SET FOOT ON THE MOON?

A: Buster Keaton
B: Buzz Lightyear
C: Buzz Aldrin
D: Buzzy Bee

WHAT DID SALLY RIDE OPERATE WHEN IN SPACE?

A: A robotic arm
B: A TV remote
C: A drone on Mars
D: A fairground attraction

HOW MUCH DID CHARLES LINDBERGH RECEIVE FOR FLYING ACROSS THE ATLANTIC?

A: $250
B: $2,500
C: $25,000
D: $250,000

WHERE DID ALOHA WANDERWELL FLY TO?

A: Belize
B: Bangladesh
C: Belgium
D: Brazil

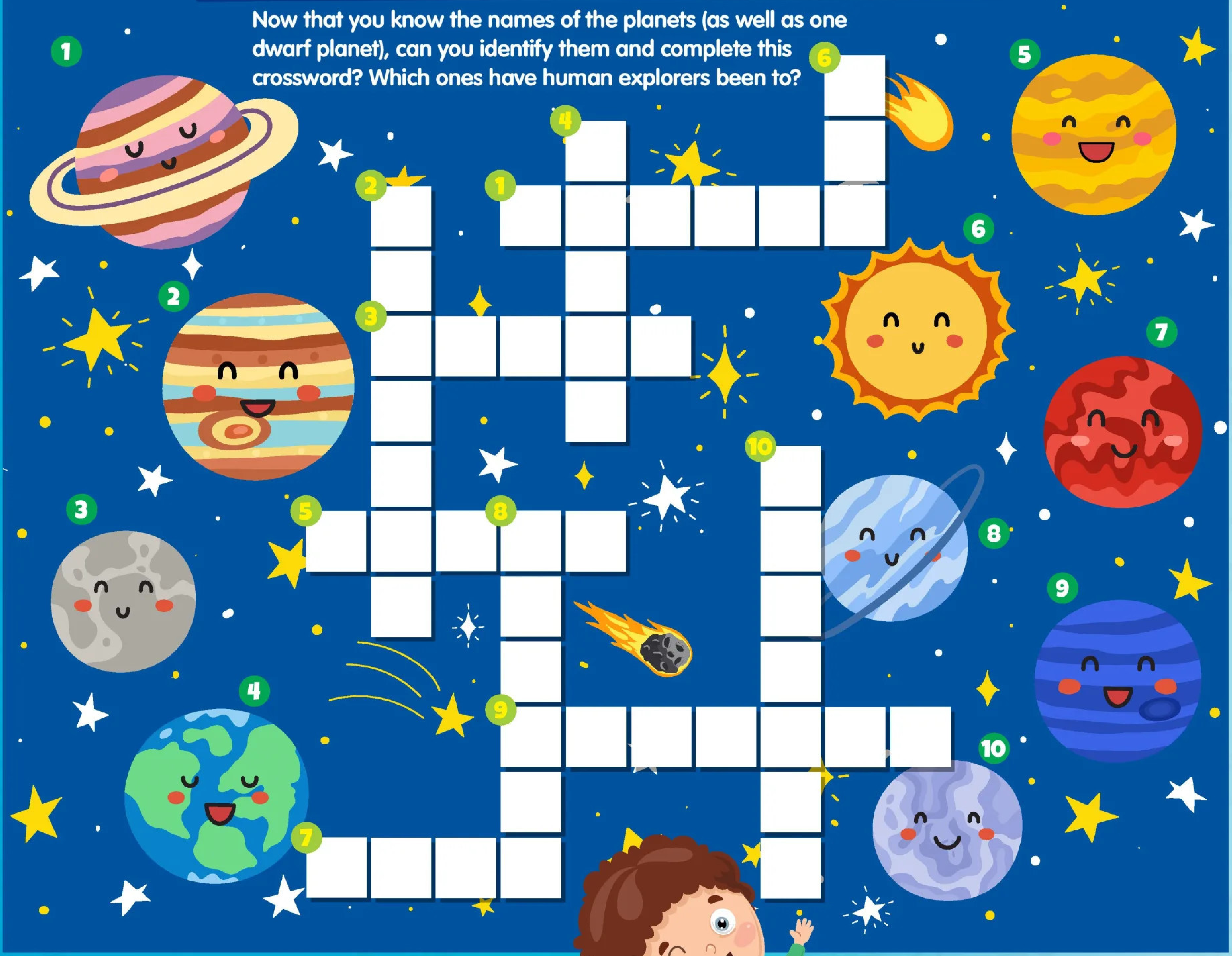
ANSWERS: B, C, A, C, D.

© Getty Images

END OF CHAPTER: PUZZLES

COMPLETE THE CROSSWORD!

Now that you know the names of the planets (as well as one dwarf planet), can you identify them and complete this crossword? Which ones have human explorers been to?



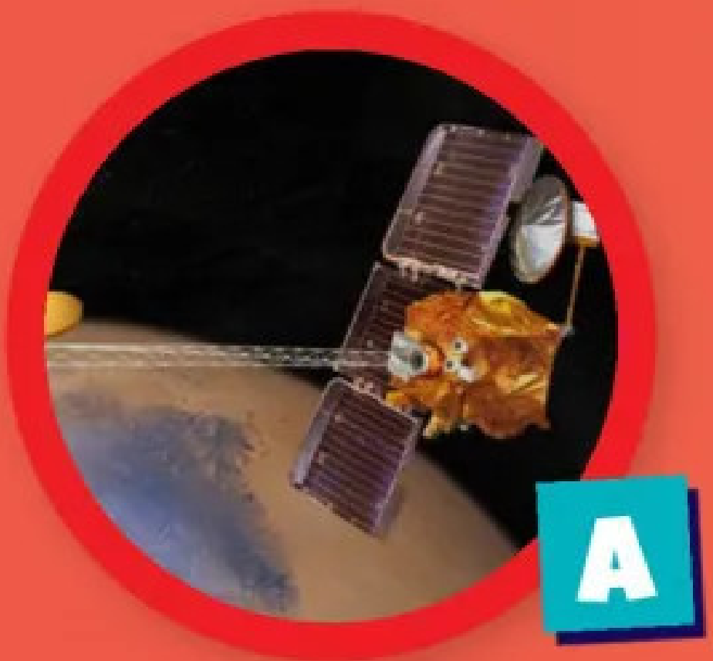
ANSWERS: 1. Saturn 2. Jupiter 3. Pluto 4. Earth 5. Venus 6. Sun 7. Mars 8. Uranus 9. Neptune 10. Mercury. Humans have only been to Earth and the Earth's Moon!

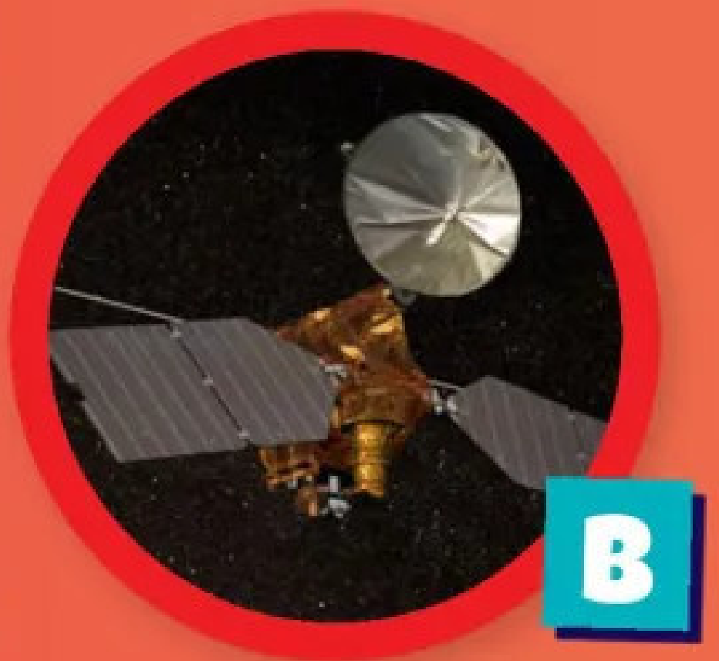
DID YOU KNOW?

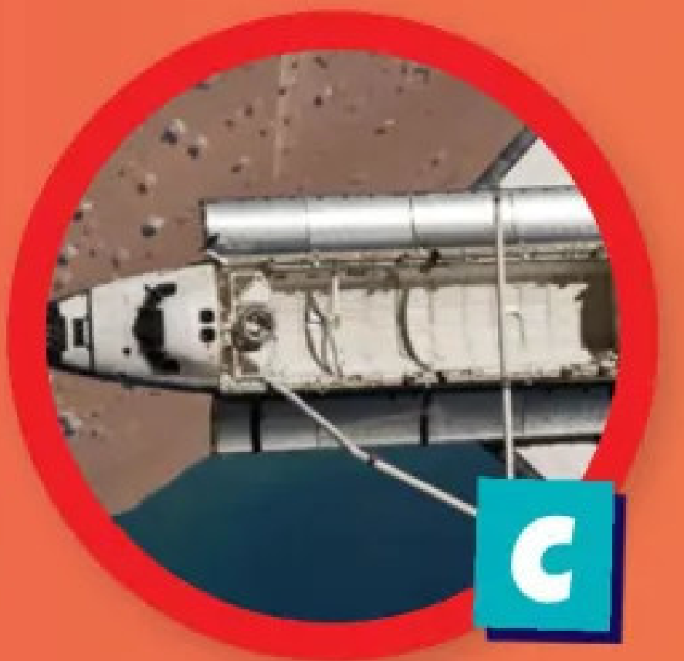
NASA's Artemis 3 mission, planned for 2025, is going to land the first women and first person of colour on the Moon. The aim is to establish a base there to assist with scientific exploration.

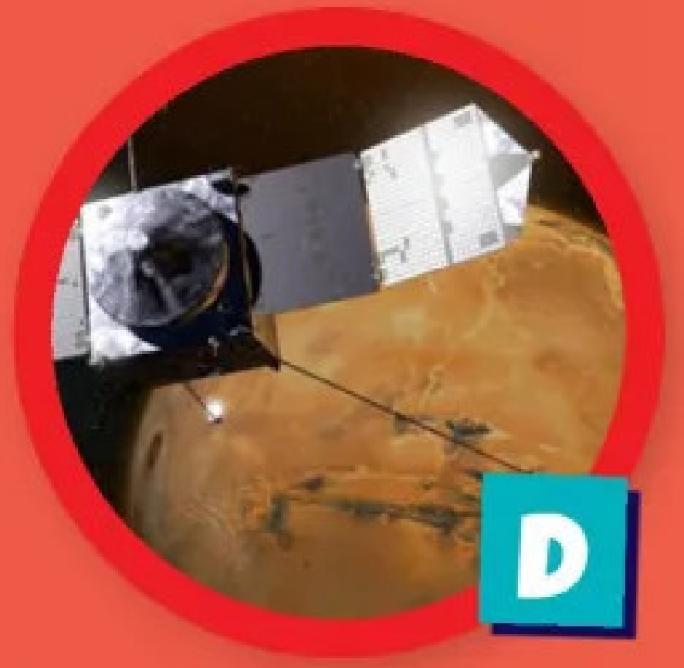
EXPLORING MARS!

Astronomers have sent a series of robots to tell them more about the Red Planet. Which one of these robots has not explored Mars?

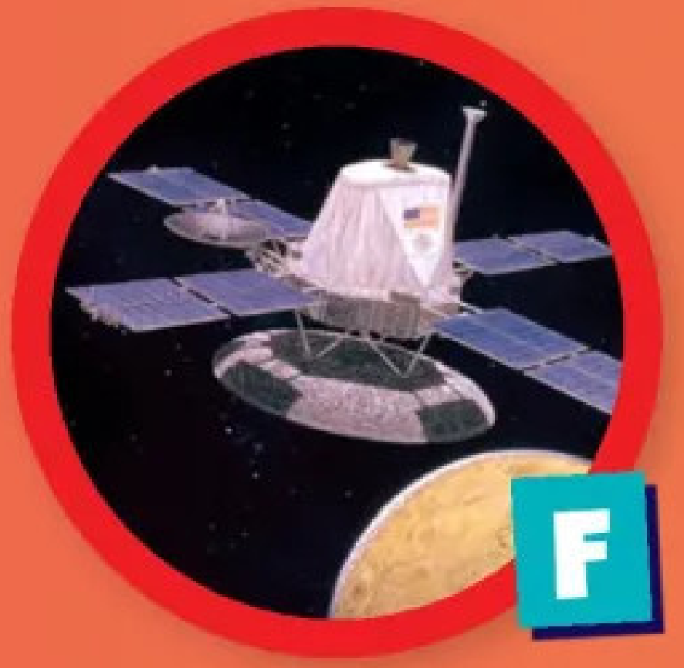

A
Mars Odyssey

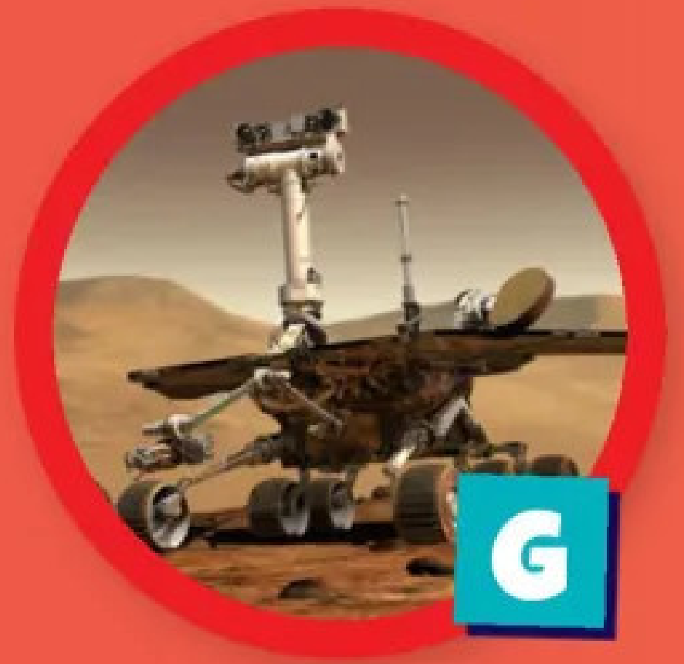

B
Mars Reconnaissance Orbiter (MRO)


C
Space Shuttle Discovery


D
Mars Atmosphere and Volatile Evolution (MAVEN)

E
Interior Exploration using Seismic Investigations, Geodesy and Heat Transport (InSight)


F
Viking


G
Spirt and Opportunity

H
Curiosity

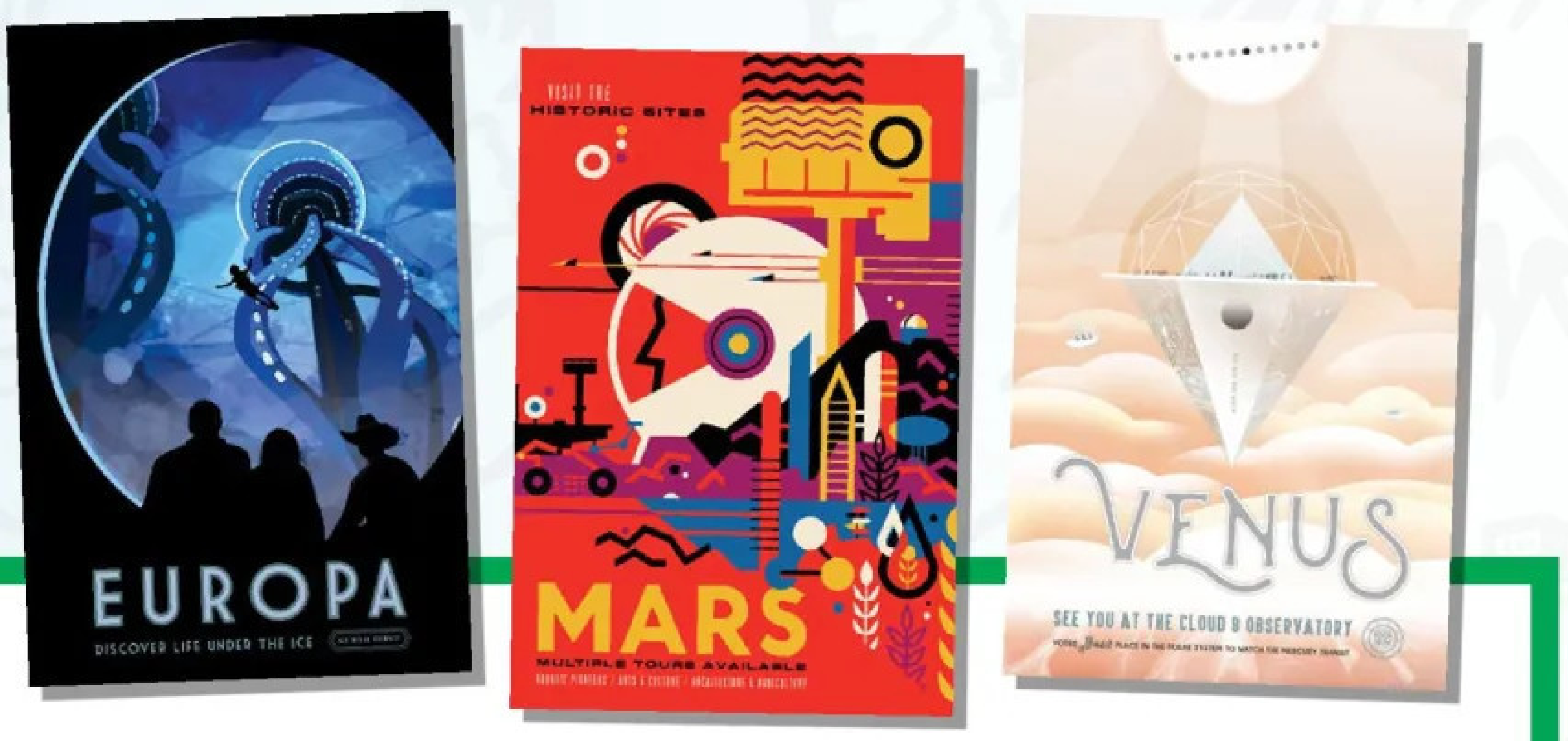
I
Perseverance

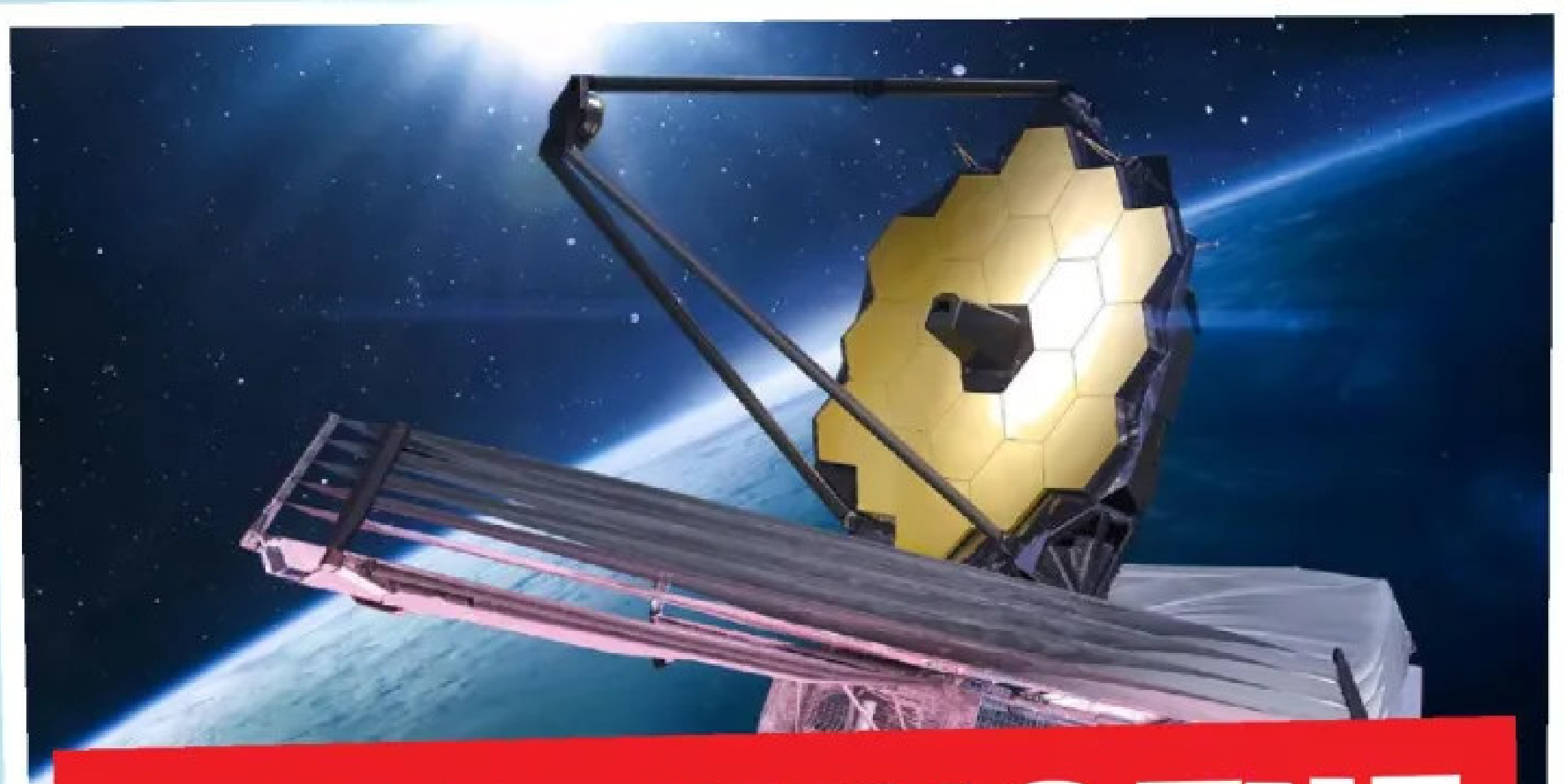
ANSWER: C. Space Shuttle discovery

HAVE A NICE STAY!

Imagine you could go to another planet! What amazing adventures do you think you could get up to?

Here are some fun posters designed by the American space agency NASA. They are promoting the benefits of going to a different planet, just like the posters you may find inviting you to stay in a beautiful coastal resort on Earth. Why not have a go at designing one for yourself, perhaps promoting a stay on the Moon?

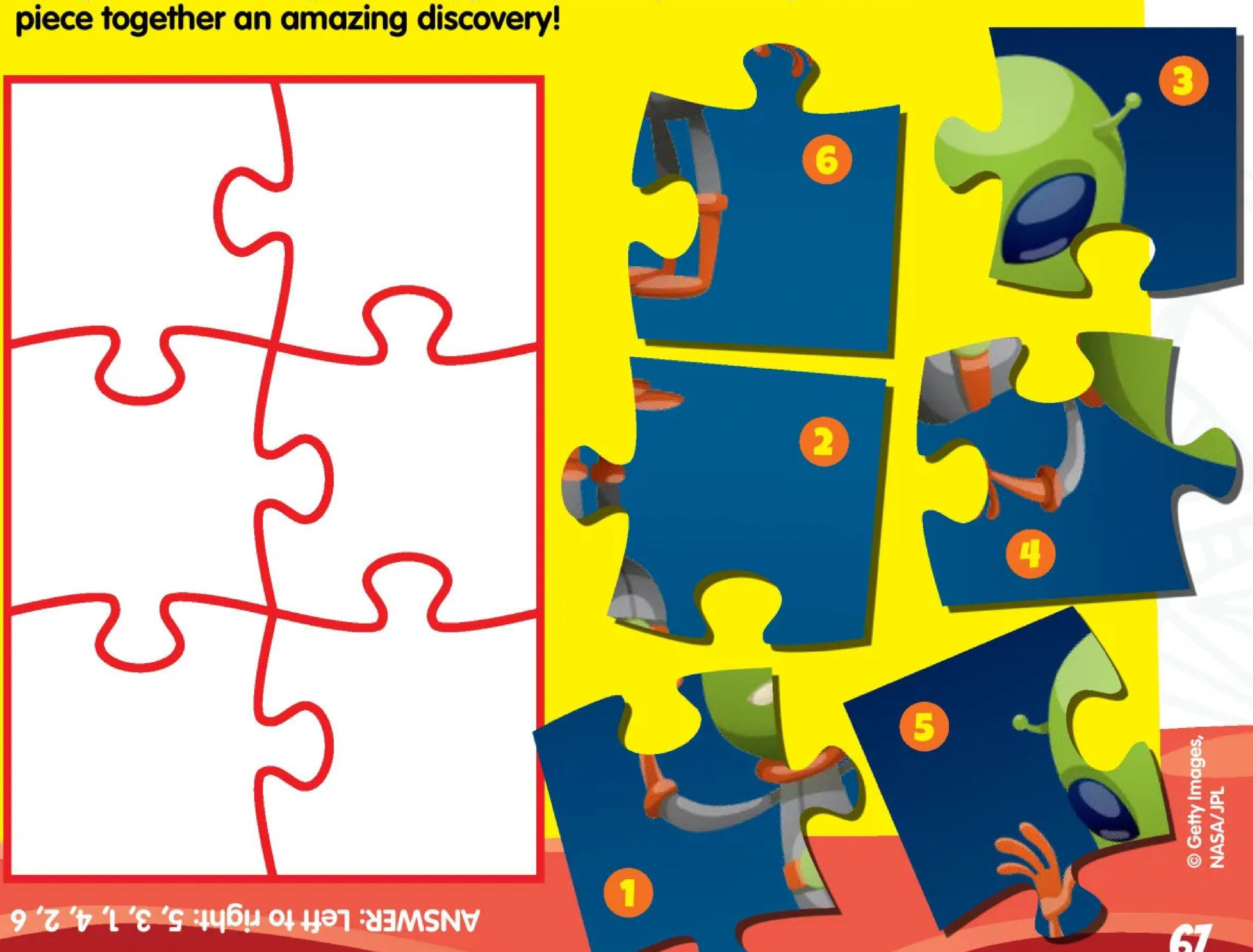




EXPLORING THE UNIVERSE TO FIND LIFE

One of the best telescopes was launched into space in 2021. Called the James Webb Space Telescope, it is helping astronomers to explore the Universe and find out more about planets that are very far away. It could help them to discover the missing piece that confirms life elsewhere once and for all.

Using the numbers, piece the jigsaw puzzle pieces together to piece together an amazing discovery!

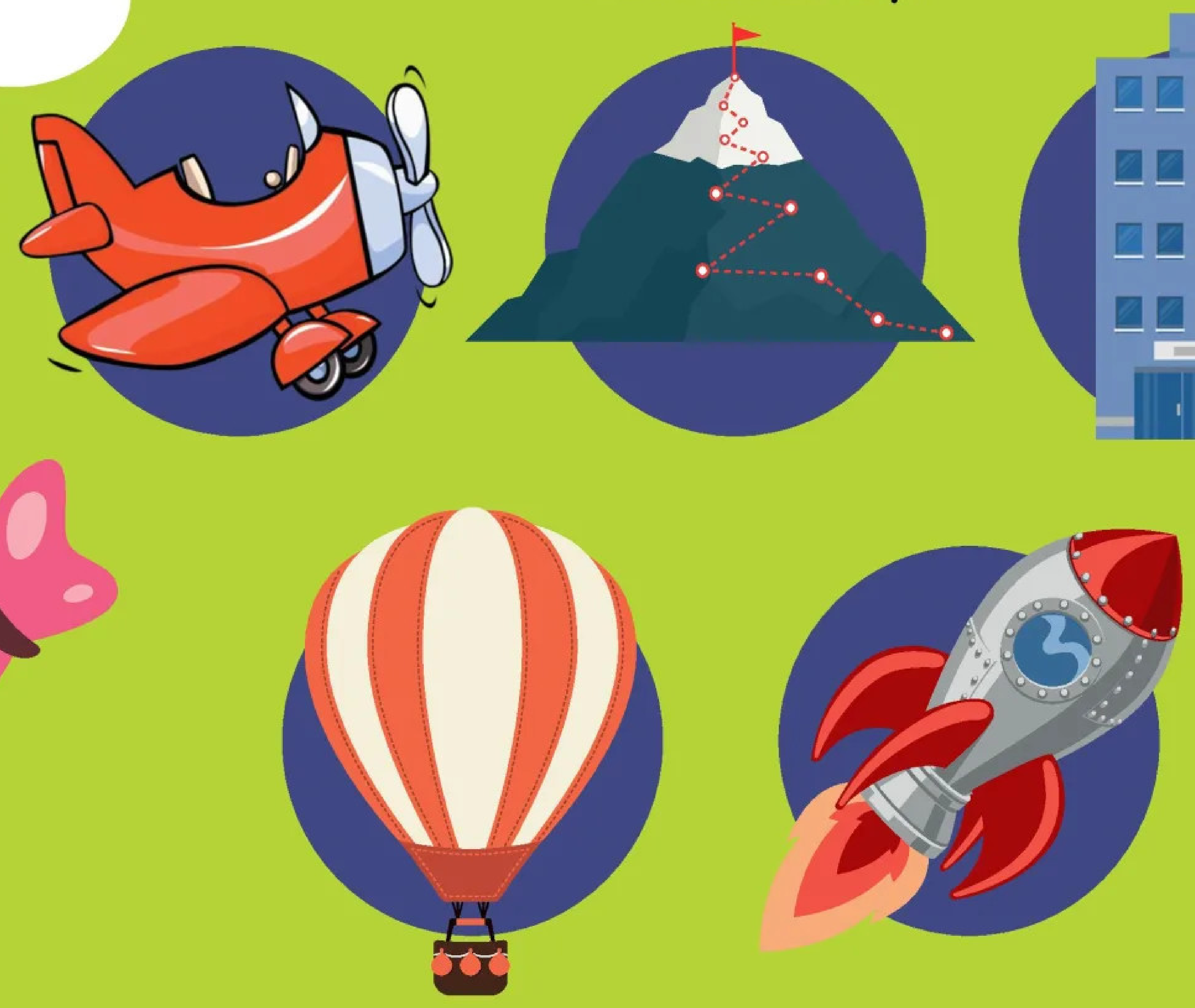


ANSWER: Left to right: 5, 3, 1, 4, 2, 6

© Getty Images, NASA/JPL

HOW HIGH?

Can you place these in order of how high they can reach into the sky?



THE TALLEST

THE SHORTEST

ANSWERS: Rocket, plane, air balloon, mountain, building

KEEPING AN EYE ON THE SKY!

There are more than 70 space agencies around the world, but only seven have sent a probe to explore an extraterrestrial location. Of those, just three have sent humans into space and only one has landed people on the moon. Can you identify those countries on this map?

SPOT THESE COUNTRIES!

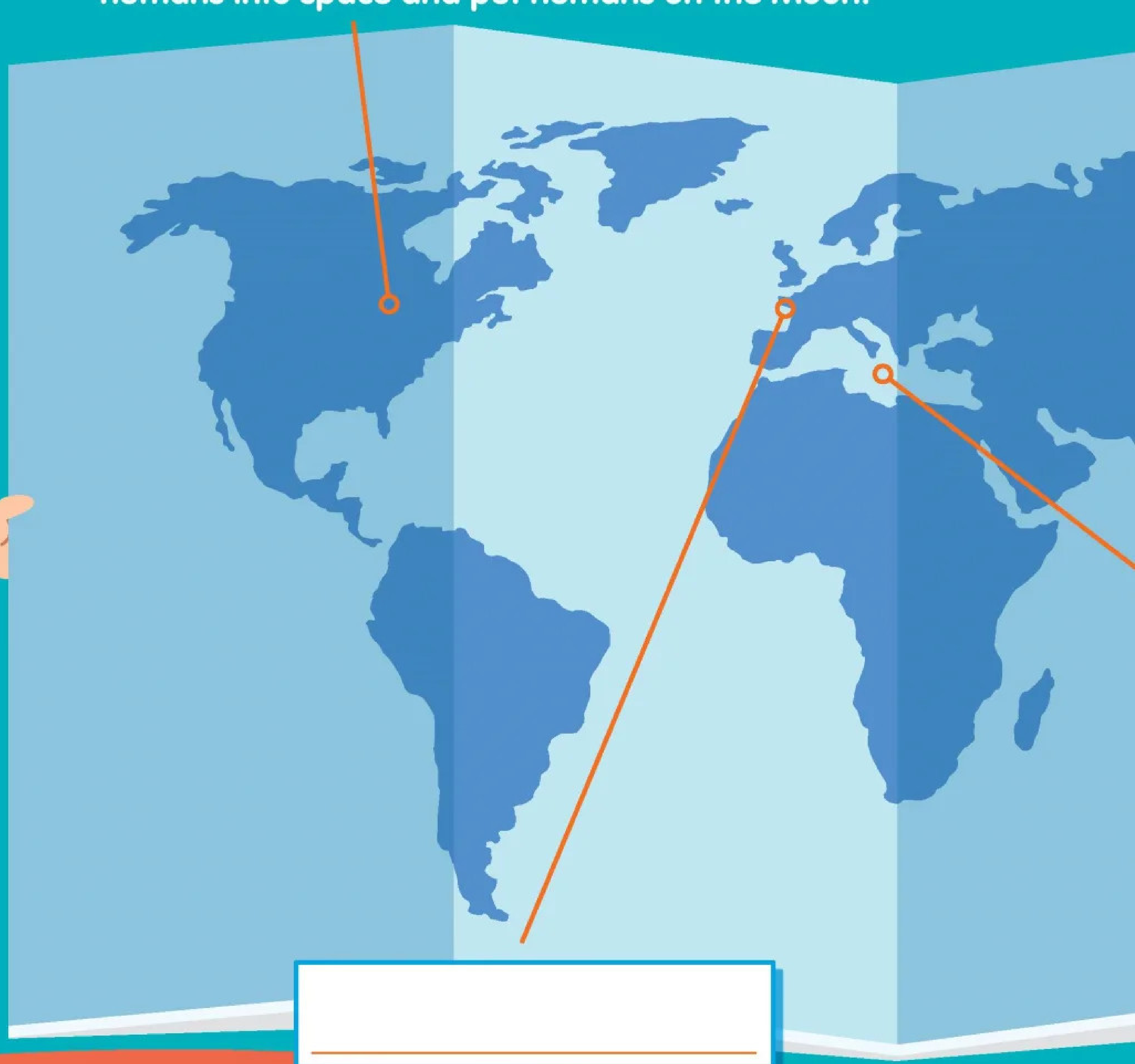
JAPAN **USA**

INDIA **CHINA**

ITALY **RUSSIA**

EUROPE

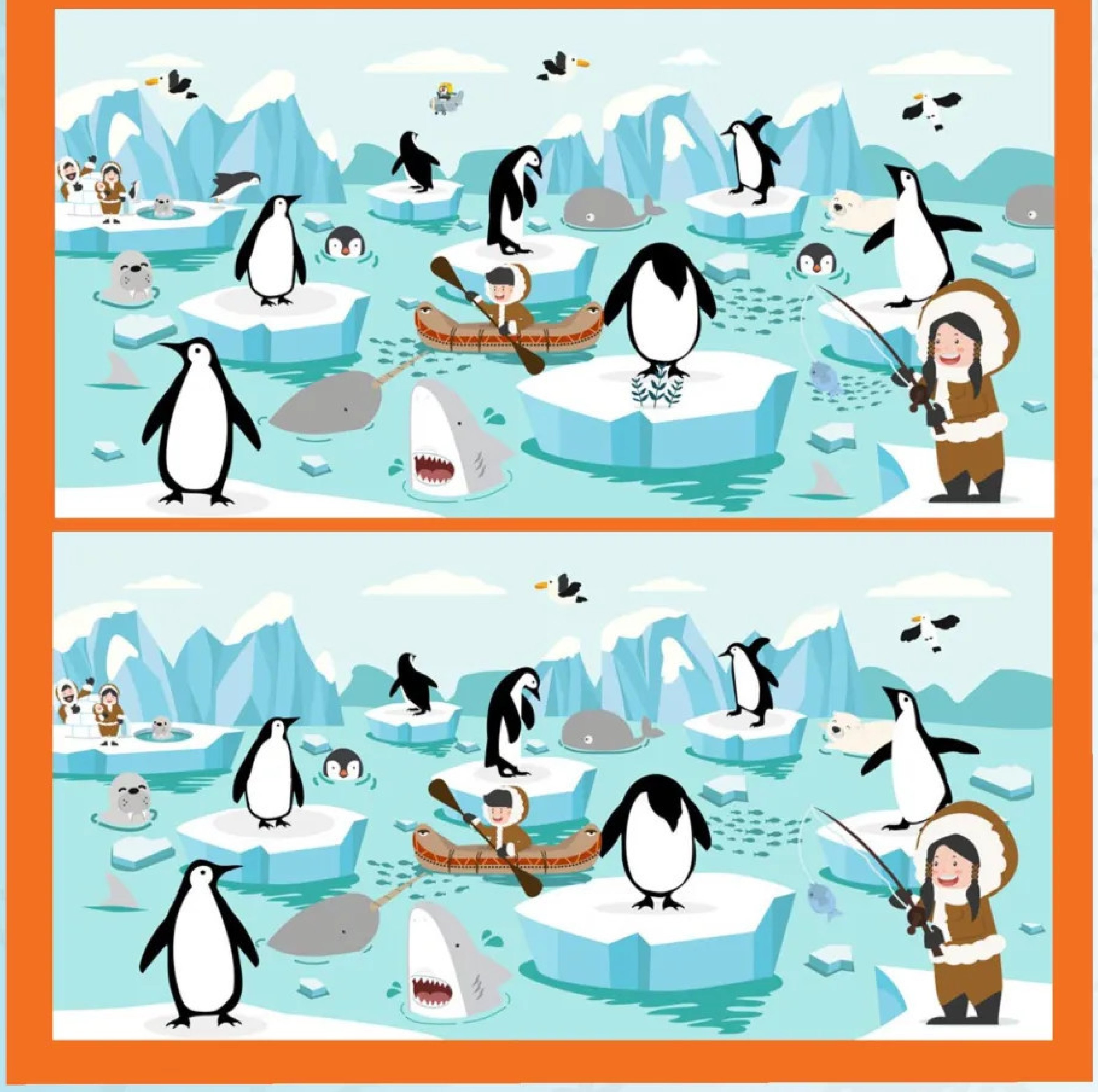
This country has a space agency called NASA. It has launched dozens of probes (including to Mars), sent humans into space and put humans on the Moon!



This group of countries works together as part of a space agency called ESA. It has sent probes to explore and unlock the secrets of the universe.

SPOT 13 DIFFERENCES

Richard E Byrd was the first to fly over the Antarctic continent. The expedition let Byrd and his companions explore the interior of Antarctica. They also learned more about its geography and weather.



TRUE OR FALSE?

Before aircrafts, we knew very little about Antarctica

TRUE ☐ **OR** **FALSE** ☐

Millions of people now live in Antarctica

TRUE ☐ **OR** **FALSE** ☐

Satellites are used to map Antarctica today

TRUE ☐ **OR** **FALSE** ☐

There are many countries in Antarctica

TRUE ☐ **OR** **FALSE** ☐

Sir George Hubert Wilkins made the first flight made in Antarctica in 1928

TRUE ☐ **OR** **FALSE** ☐

ANSWERS: True, false, true, false, true

______

This country has a space corporation called ROSCOSMOS. It has sent humans and probes into space, but lost the race to put humans on the Moon.

______

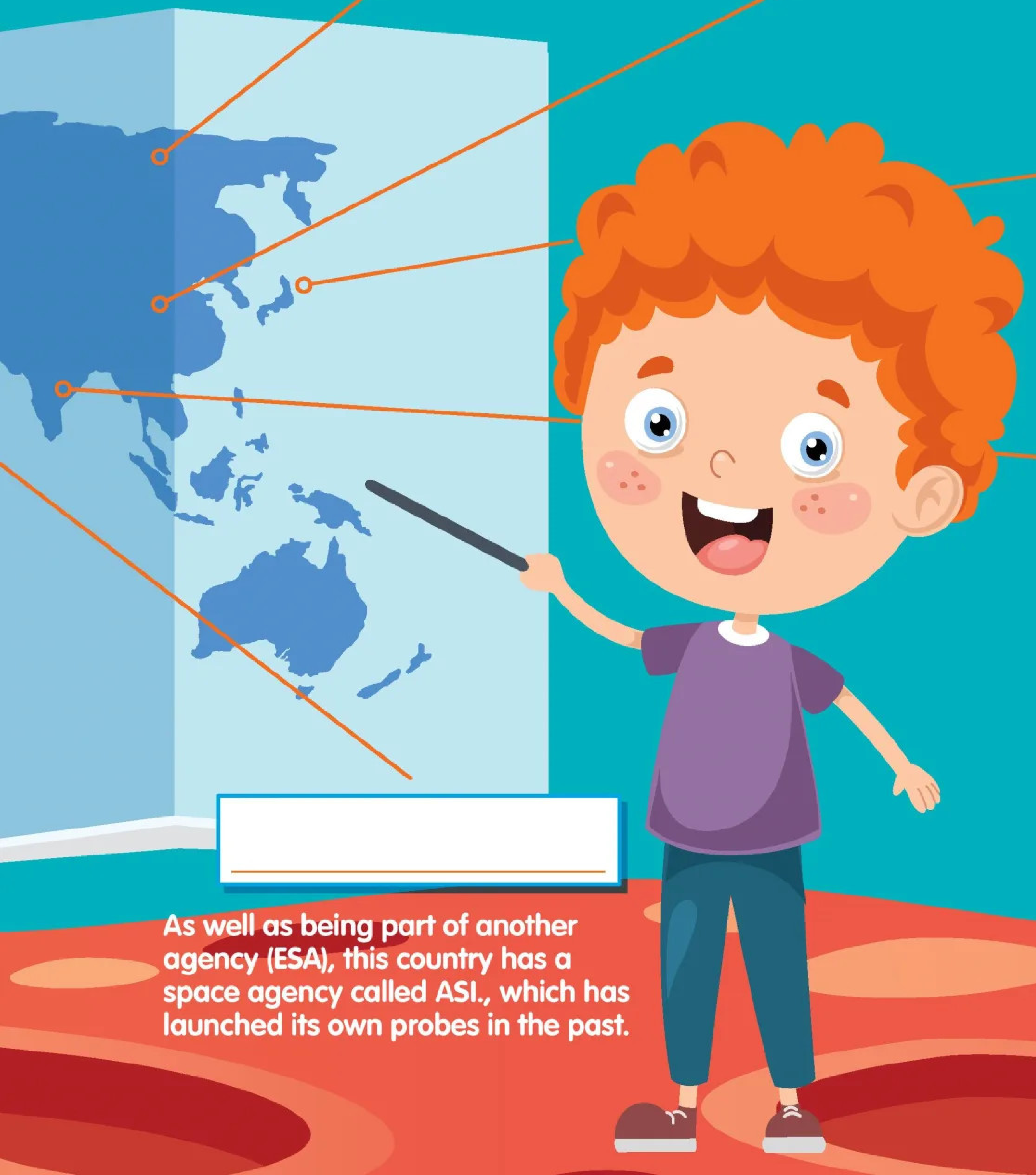
This country has two space agencies: CNSA and CMSA. It sent humans into space in 2003 and it has also sent a probe to Mars.

______

This country has a space agency called JAXA. When it launched a satellite in 1970, it became only the fourth country to do so!

______

This country has a space agency called ISRO. It launched its first satellite into space in 1980 and has sent probes to the Moon and Mars.



______

As well as being part of another agency (ESA), this country has a space agency called ASI., which has launched its own probes in the past.

© Getty Images

EXPLORING HISTORY

Many explorers have searched for new lands to open up trade, find lots of resources or expand a country's territory. For those explorers, it has been important to look to the future and discover new opportunities.

Yet plenty of explorers have also wanted to delve into the past. By discovering parts of the world or objects that have been hidden for a long time – sometimes for many years, decades or centuries – these explorers have been able to bring the past back to life.

In this section, you are going to meet some of the explorers who have helped historians to learn more about the world. You will be able to feel the sense of wonder at unearthing tombs that had lain untouched for thousands of years and entire cities that had become overgrown and hidden from view.

Explorers who found such things (in many cases, accidentally) helped to teach the world about past civilisations. They shed light on jaw-dropping architecture, helped historians to understand how societies worked and helped to piece together information about important events and people.

Let's take a look at the vital work these explorers did and how their discoveries changed the world.

DISCOVERED OR REDISCOVERED?

Most explorers didn't really *discover* new lands. In a lot of cases, people were already living there. The same goes for ancient cities, even those that had been abandoned. Think about it – humans built those cities, so someone must have known about them before the explorers arrived! What we often mean by 'discover' is that *Europeans* found these lands or cities for the first time. In that sense, we should really say they were *rediscovered*.

LOST CITIES OF THE WORLD

Lots of cities have been abandoned, only to be later rediscovered. Here are 10. Can you find them in this word search?

L	N	X	D	K	O	O	R	H	E	Q	Q	W	P	S
U	S	T	S	O	A	H	E	L	I	K	E	Q	U	Q
D	R	E	L	B	V	L	Q	N	N	W	B	Q	J	S
O	A	E	A	M	Z	E	I	P	S	O	B	S	A	E
N	Z	F	G	I	A	N	Y	B	T	D	E	X	P	T
A	D	O	U	H	Q	C	I	A	A	T	T	T	A	A
J	G	P	N	V	E	O	H	Z	K	N	J	X	N	U
Y	D	E	I	N	F	R	P	U	G	Z	G	J	F	D
D	D	T	T	O	F	G	A	K	P	J	H	A	I	H
C	A	R	A	L	X	V	L	C	X	I	C	X	N	I
W	M	A	T	A	X	I	L	A	L	X	C	X	N	Y
I	P	O	M	P	E	I	I	T	H	E	A	C	T	P
R	E	Z	C	B	M	L	N	U	D	W	I	F	H	Y
V	I	J	A	Y	A	N	A	G	A	R	A	O	O	U
O	B	X	W	V	W	P	X	B	V	R	Q	L	N	U

- VIJAYANAGARA
- HERACLEION
- KALIBANGAN
- POMPEII
- LAGUNITA
- MACHU PICCHU
- CARAL
- TAXILA
- PETRA
- HELIKE

HENRI MOUHOT

In the midst of a remote jungle, Henri Mouhot came across an ancient city that had lain abandoned for many centuries. It was almost completely covered by forest, and difficult to reach, but the more Mouhot saw, the more excited he became.

This city – known as Angkor – was, he said, grander than anything that has previously been left to us by Greece or Rome. As he discovered, it was once the capital of the Khmer Empire, located in what is now Cambodia in Southeast Asia. It included some amazing temples and magnificent monuments.

Mouhot already knew the city existed. He had read about it in papers written by Father Charles-Emile Bouillevaux, who had visited Angkor in 1854. Even so, Mouhot's main interest was collecting insect specimens and plants in Cambodia, Laos and Vietnam. His trip to Southeast Asia was organised by the Royal Geographical Society in London, and he set off in 1858.

During his travels, Mouhot worked hard. He made drawings of the animals he saw and collected species, telling the British Museum about his finds. But when he was in Cambodia in 1859, he decided to make a trip to Angkor. A guide called Mongkhol Sasorith helped him to find it, and they arrived on a fishing boat in 1860. He made notes about everything he saw.

Among the great sights was Angkor Wat, a grand and meticulously preserved Hindu temple hiding paintings and decorative pillars. There were dozens more temples with intricate architecture, as well as sculptures and carvings. By making detailed drawings of what he saw and writing in-depth descriptions, he helped to bring Angkor alive.

When his words and pictures were published in a book in France in 1868, they caused a sensation. Suddenly, the wider world became aware of Angkor and its secrets, and people wanted to know and see more. Thanks to Mouhot, there was no chance of Angkor ever being hidden again.

PICTURE THIS!

Henri Mouhot didn't take a camera on his expedition. Taking photographs was a difficult process because images had to be processed straight away. As well as a camera, people needed to carry a portable darkroom, heavy glass plates and holders, and lots of chemicals. Instead, Mouhot made detailed drawings of what he saw. This also showed how important it was for explorers to document their discoveries so that they could share their finds with the world.

Here is one of Mouhot's drawings of the Angkor Wat temple complex in 1860, as well as a photo taken much more recently. As you can see, Mouhot's illustration captured it well. Why not create a colourful version of your own in the space below?

DRAW HERE

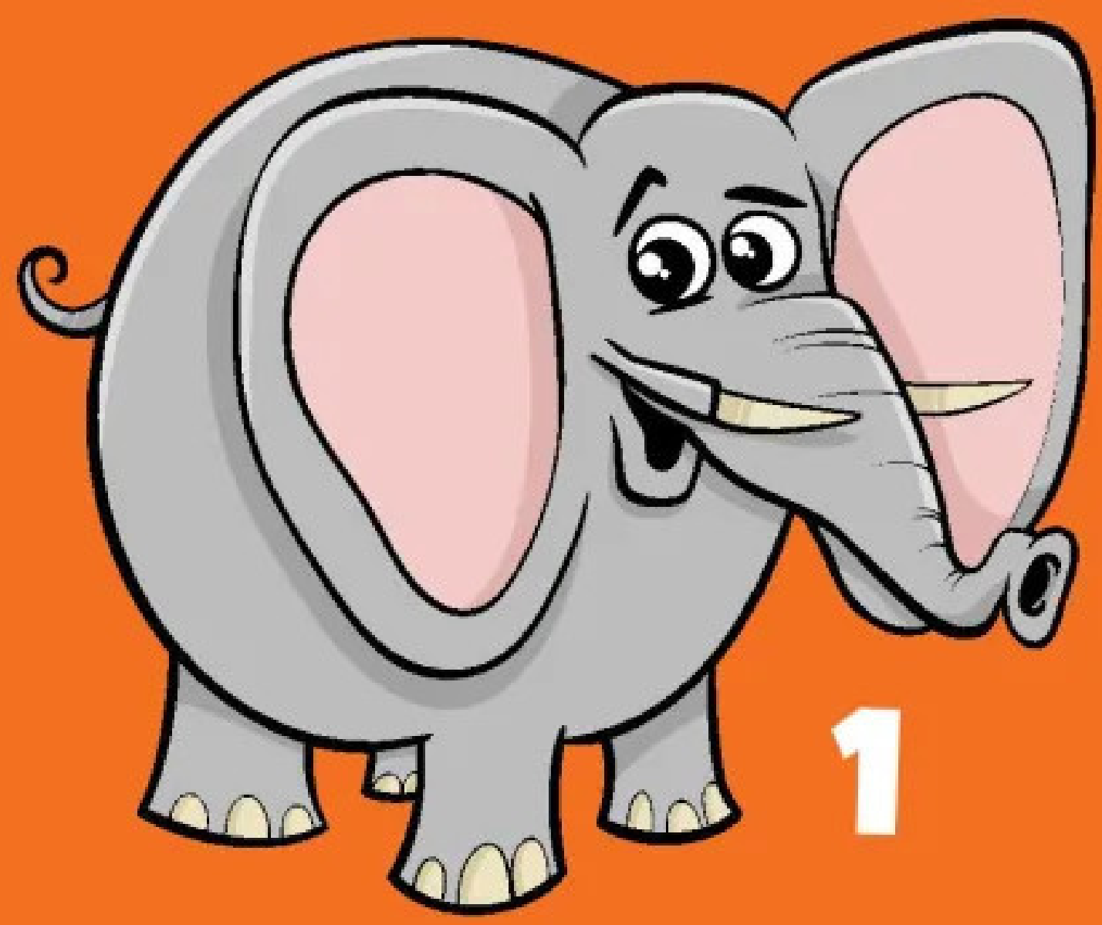
DID YOU KNOW?

The first photo of Angkor Wat was taken in 1866 by a dedicated photographer called John Thomson.

GETTING AROUND!

Without cars, buses and trains, explorers often had to take more natural transport. During his expedition, Henri Mouhot travelled for many miles by fishing boat, but he also rode on elephants, travelled in an oxen cart and rode horses. He reached the ruins of Angkor Wat on foot.

Here are some elephants he may have ridden! Can you match them to the shadows?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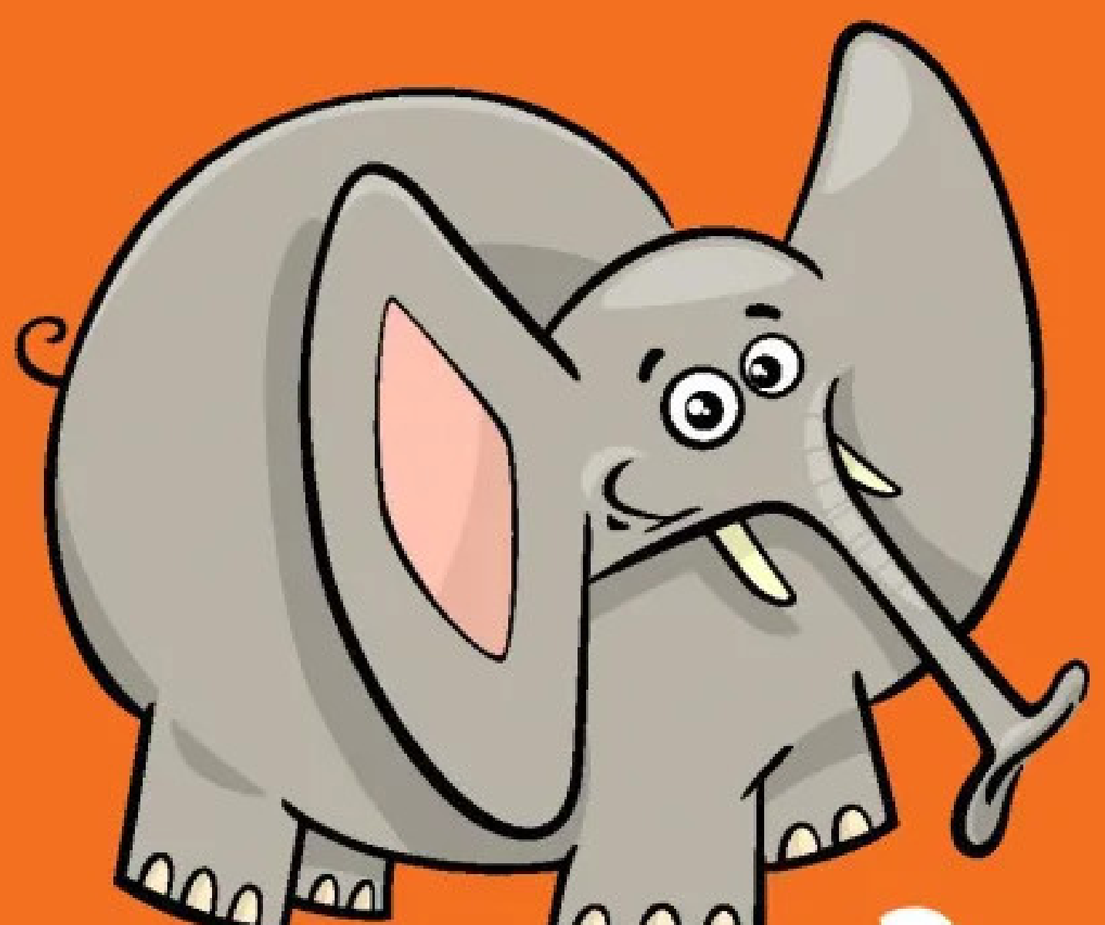
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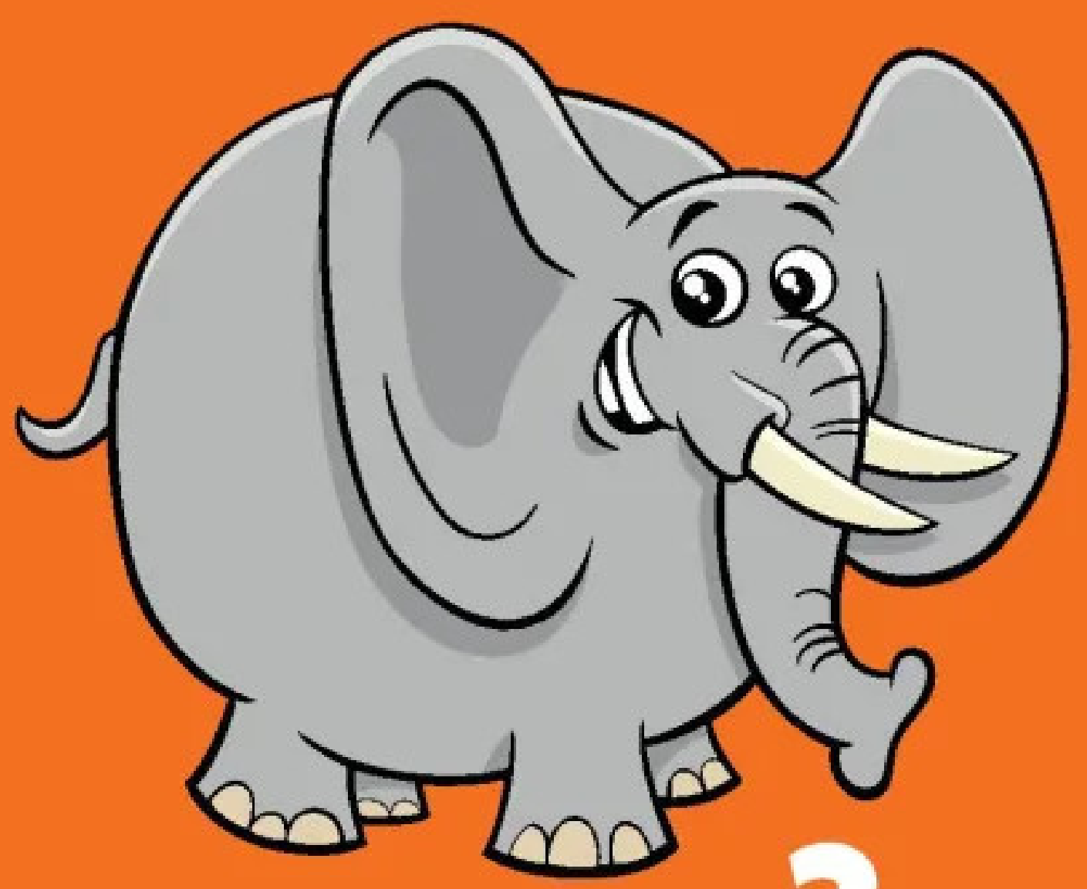
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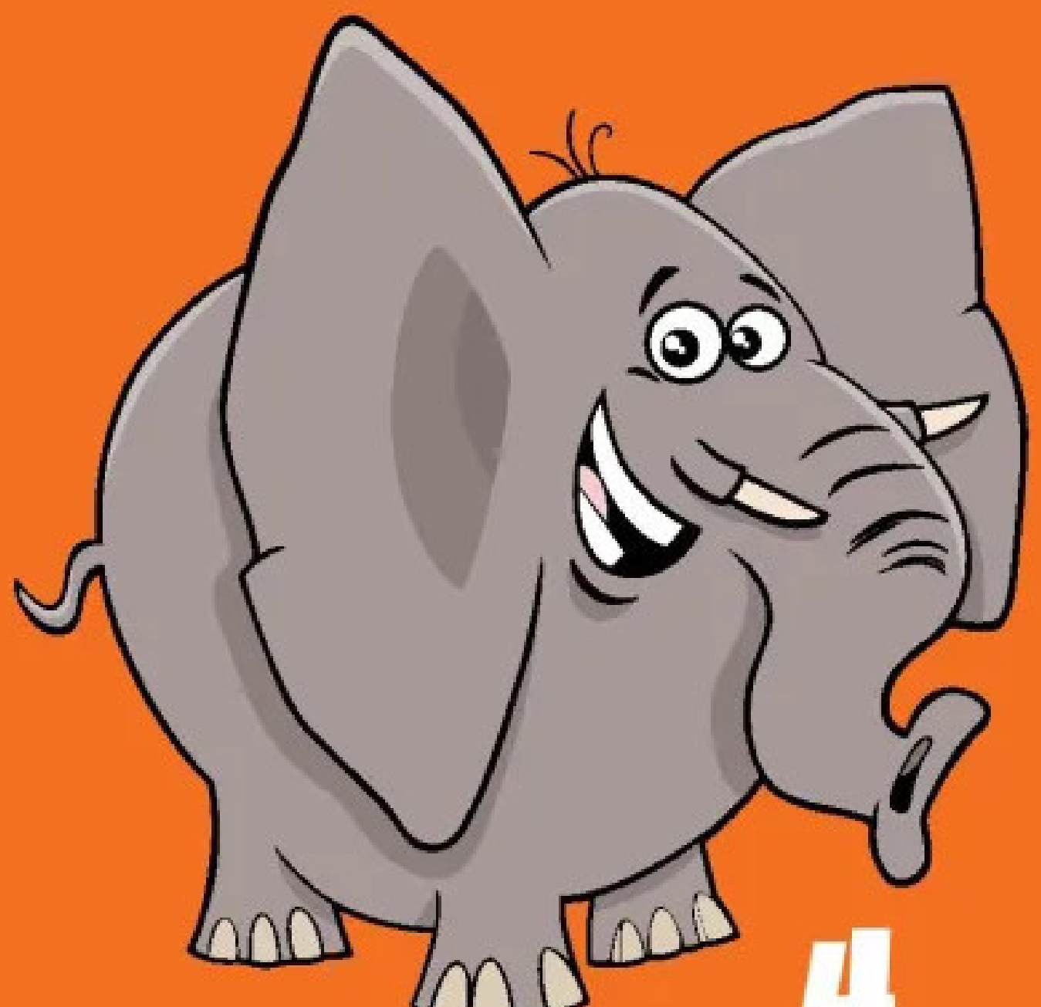
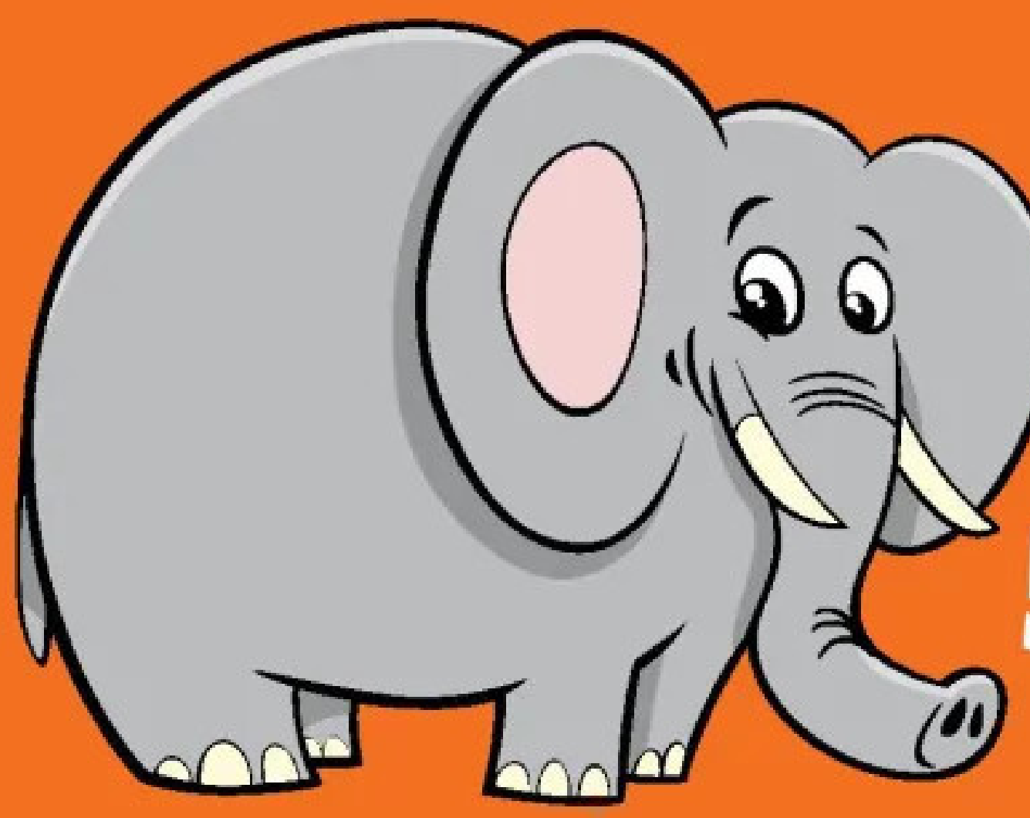
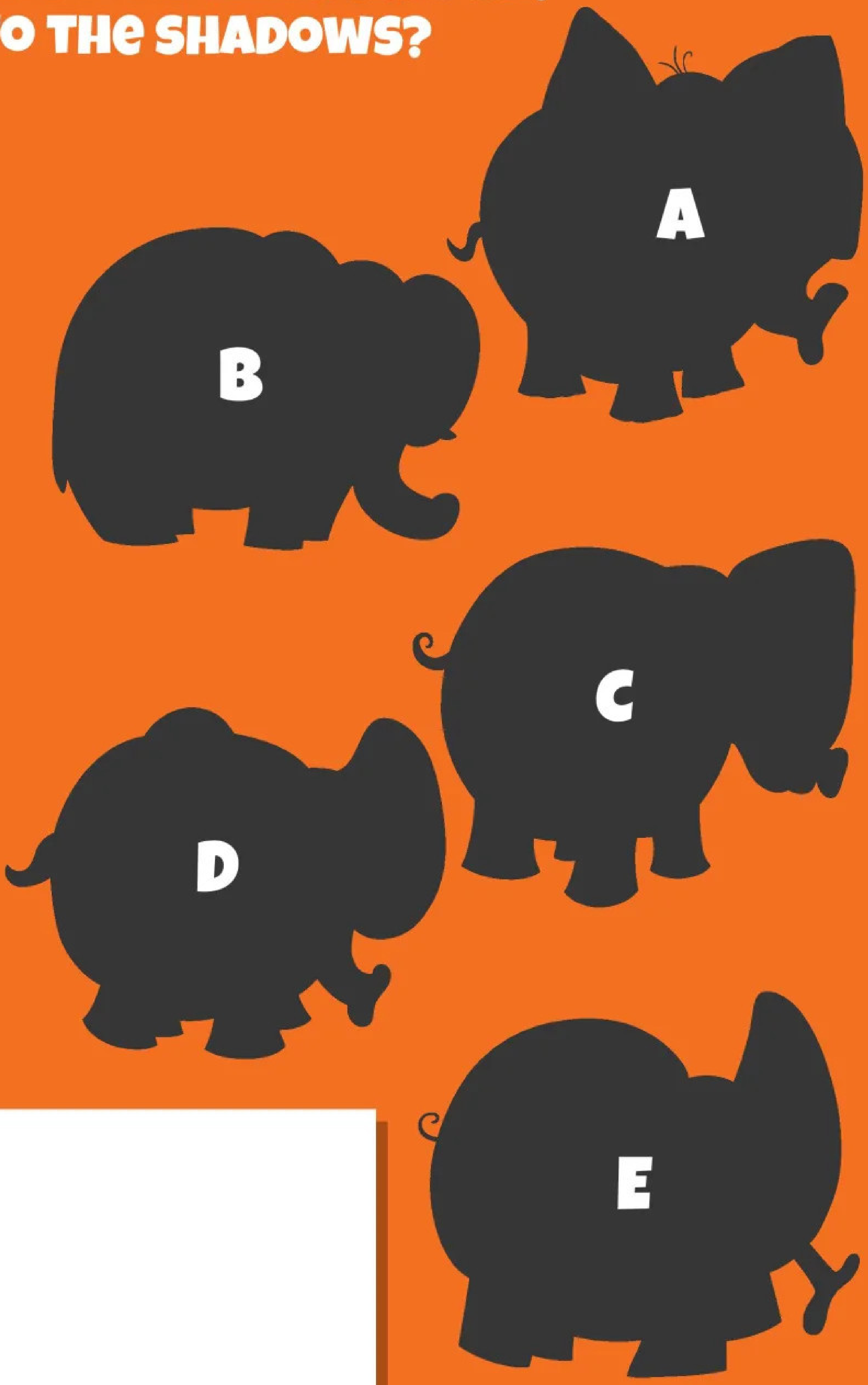

4


5

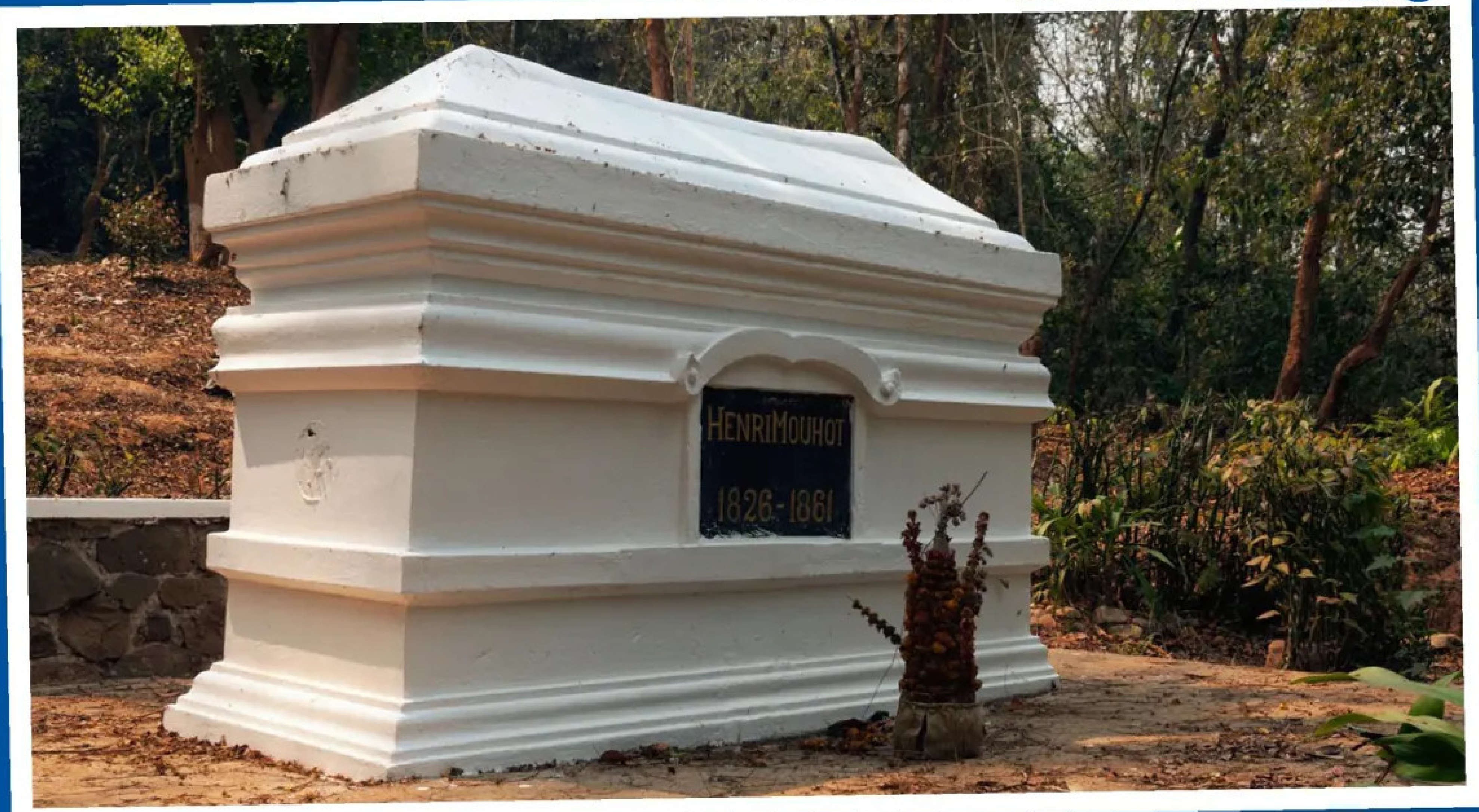


ANSWERS: 1C, 2E, 3D, 4A, 5B

WHAT'S

Most temples in Angkor have been preserved and restored, but Ta Prohm has been left to nature and the roots of kapok trees have wrapped around it. This is how Henri Mouhot would have discovered many structures in the ancient city.

FINDING MOUHOT'S TOMB!



When Mouhot died in the jungles of Laos in 1861, aged just 35, he was buried by the banks of the Nam Khan river. A monument was placed over the top in 1867, but despite being restored in 1951, the jungle eventually grew over it. Mouhot tomb became lost within the greenery until a French scholar called Jean-Michel Strobino rediscovered it in 1989. It was refurbished a year later.

© Getty Images

HOWARD CARTER

For many centuries, King Tutankhamun's body had rested peacefully in the Valley of the Kings. The young boy had been the ruler of all of Egypt from the age of nine until he died aged 18. He had been frail, suffering from malaria, epilepsy and a bone disorder. He also had a club foot and walked with a cane.

Howard Carter had spent years looking for Tut's tomb. He began his search in 1914 when Lord Carnarvon (an aristocrat who loved to learn more about Egypt's rich history) paid him to lead a dig in an area known to be packed with tombs and temples. The First World War forced the plan to be delayed until 1917. Five years on, Tut's secrets remained buried.

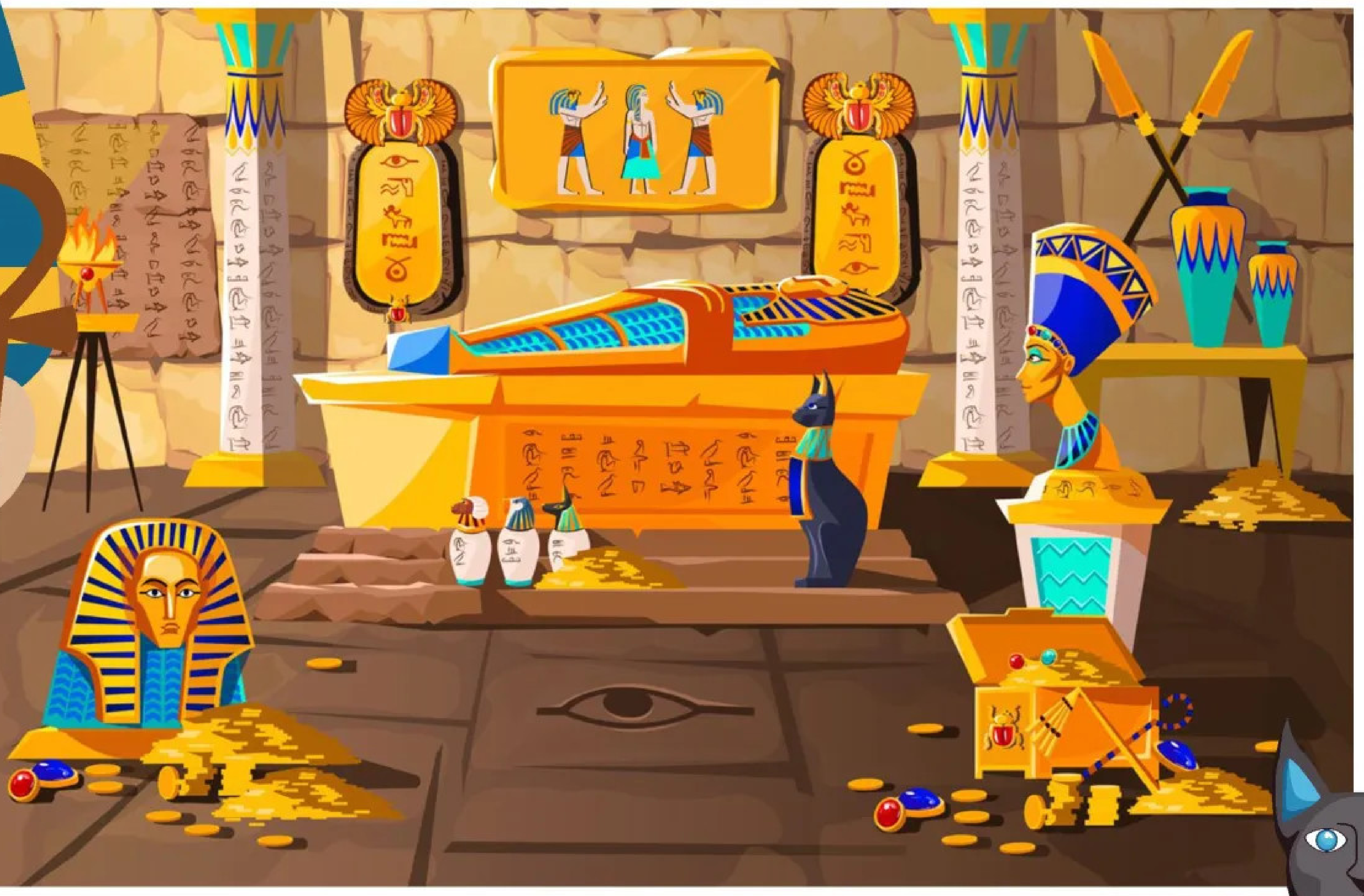
Lord Carnarvon wanted to stop the dig, but Carter begged to be allowed to continue for another season. Just three days later, on 4 November 1922, a 12-year-old boy called Hussein Abdel-Rassoul, who was carrying water for the expedition, stumbled upon a stone in the sand. It turned out to be the first of a number of steps leading to the entrance of a tomb. The rest of the staircase was quickly cleared.

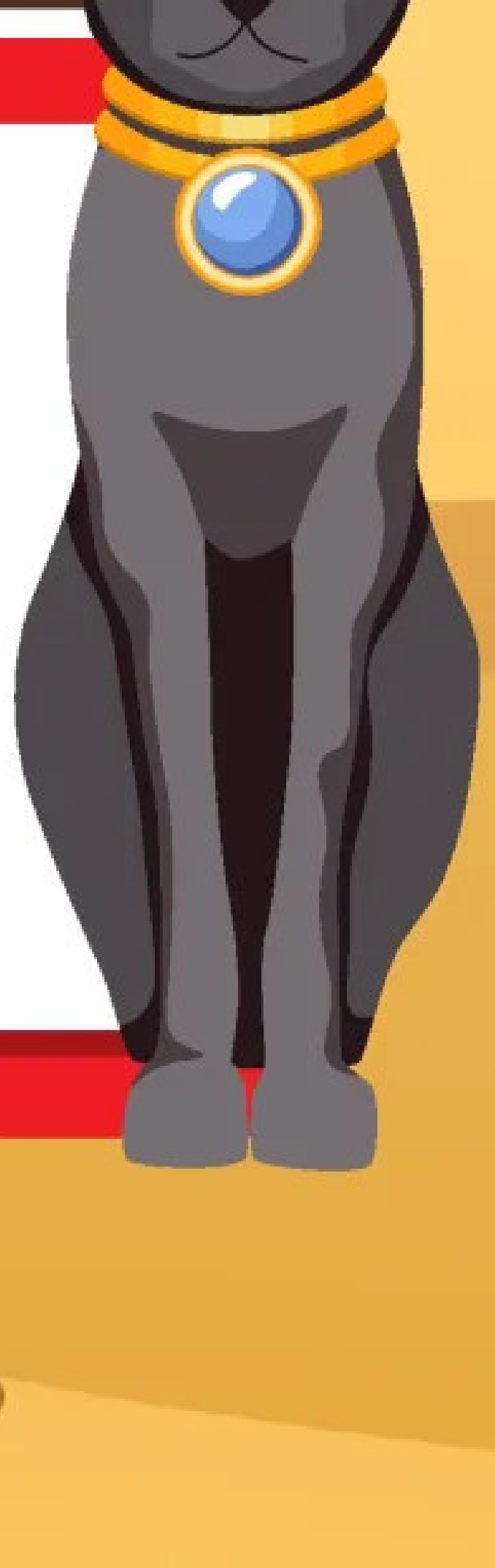
Carter and his team ventured down, finding a doorway bearing the seal of King Tut. Behind that door was the tomb's entrance. Making a small hole in the door and holding a candle, Carter peered inside. The room was full of riches. Lord Carnarvon was told to travel to Egypt at once. Two weeks later, they finally opened the door. It became one of the biggest discoveries ever made!

The first room had 700 treasures: "strange animals, statues, and gold – everywhere the glint of gold," Carter later wrote. It took two-and-a-half months to catalogue and remove all of the items in the first room alone. But there was more. It took another three months to find Tutankhamun's burial room and this one contained more than 5,000 treasures, including dismantled chariots, statues, large chests, walking sticks, paintings, jewellery and a golden throne. Tut's body was inside a stone coffin.

FIND THE TREASURE

TAKE A LOOK AROUND THIS TOMB. LIST 10 ITEMS YOU CAN SEE!



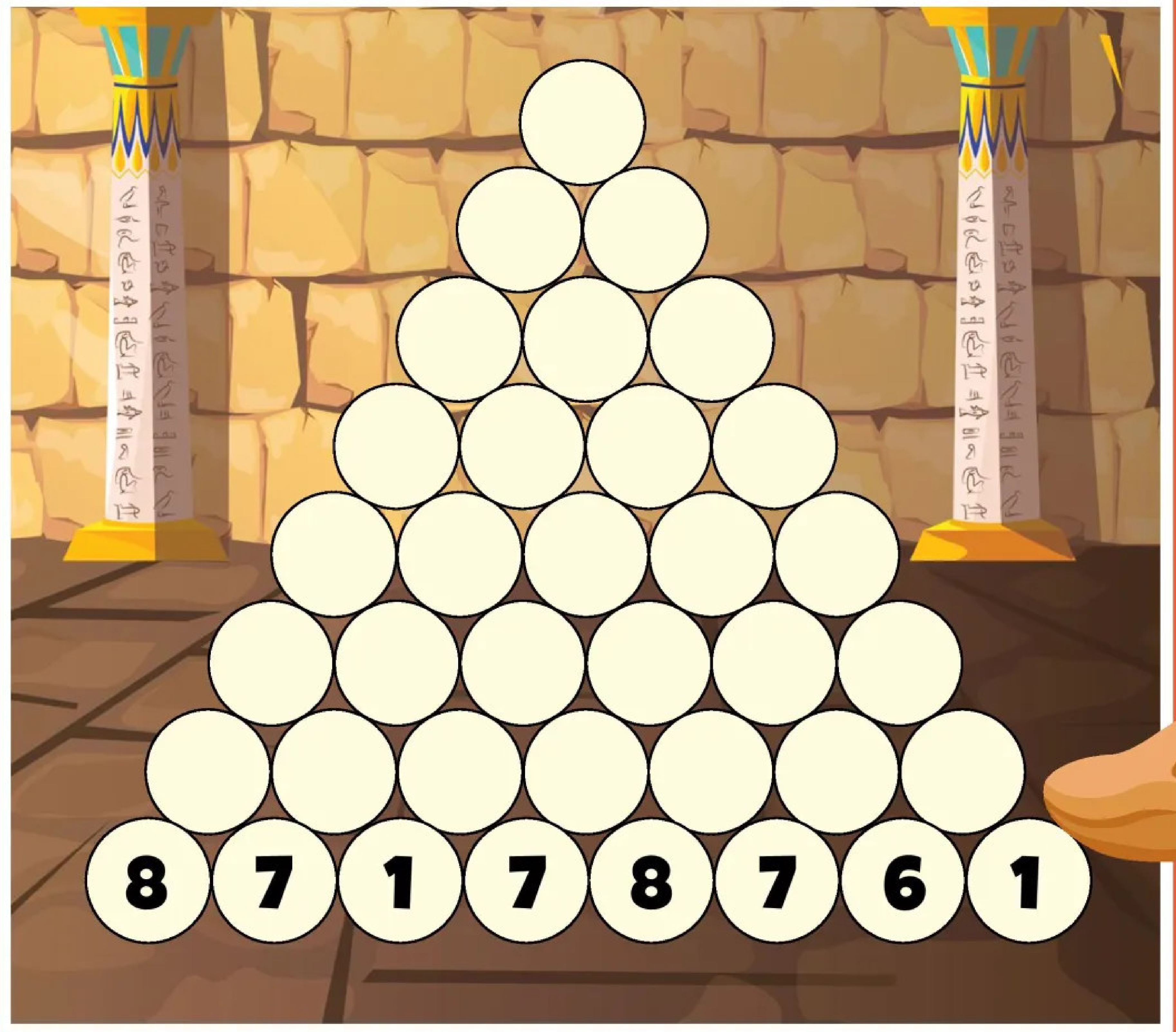


DARE YOU OPEN A TOMB?

King Tut was buried in a tomb in the Valley of Kings, but many pharaohs were also buried in pyramids during an Egyptian period known as the Old Kingdom. The pyramids included temples and burial places for a pharaoh's family members and servants. The pharaoh would be laid to rest in a burial chamber filled with treasure for use in the afterlife.

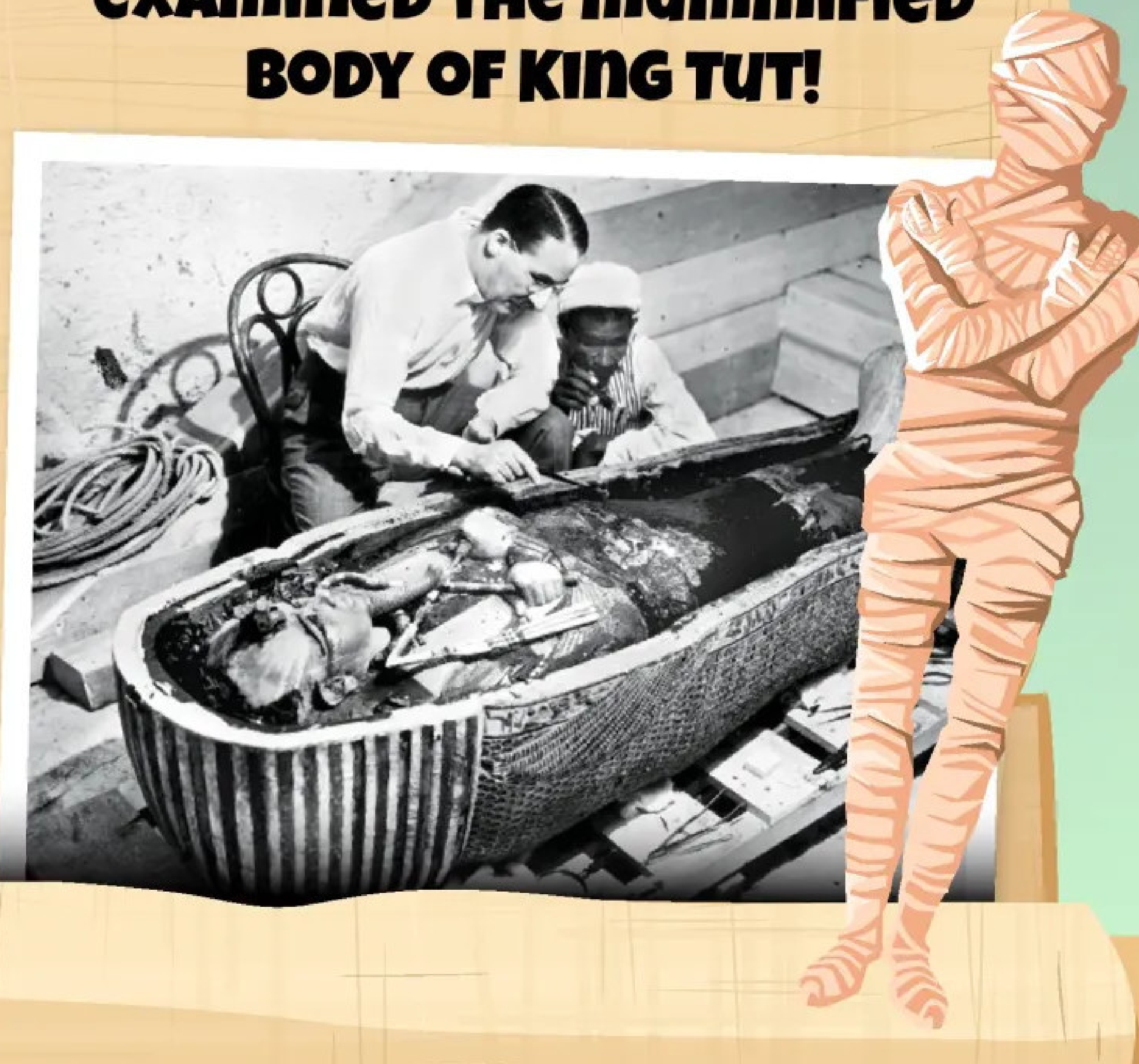
Most pyramids were targeted by thieves, so the builders tried to secure them by including traps. They weren't like the ones you'll see in the movies – explorers have never had to run from a giant rolling ball! Instead, they were designed to block access to certain parts of the tomb. The builders also created fake passages and burial chambers.

UNLOCK THIS TOMB BY FILLING IN THE BLANKS. THE SUM OF THE TOP BRICKS IS EQUAL TO THE TWO BRICKS THAT ARE DIRECTLY BELOW IT.



TUT TUT!

HOWARD CARTER EXAMINED THE MUMMIFIED BODY OF KING TUT!



WATCH THIS!

EXPLORE THE TOMBS IN THE VALLEY OF THE KINGS WITH THIS BBC SHORT!

SCAN WITH YOUR PHONE OR TABLET

https://www.youtube.com/watch?v=SVh89B1oltg

CURSE OF THE PHARAOH

When King Tut's tomb was opened, some people believed a murderous mummy's curse had been unleashed! Six weeks later, Lord Carnarvon was bitten by a mosquito which led to him to die of high fever and pneumonia while another visitor to the tomb, George Jay Gould, died shortly after. But Howard Carter, who actually removed the mummy from the sarcophagus, lived for another 16 years, and Carnarvon's daughter, who also visited, remained alive 57 years later!

© Getty Images

HIRAM BINGHAM

In the 1400s CE, the Inca Empire covered a vast region of 4,000 kilometres (2,500 miles). It was located in South America and spanned modern-day Peru, as well as parts of Ecuador, Bolivia, Argentina, Columbia and Chile.

Its civilisation was advanced. The Inca people built large stone cities and temples, created a system of roads and bridges, and developed efficient farming methods. But the empire didn't last long. When Spanish explorers arrived, they carried diseases such as influenza and smallpox that killed many. The Spanish then invaded in 1532 and the empire soon fell.

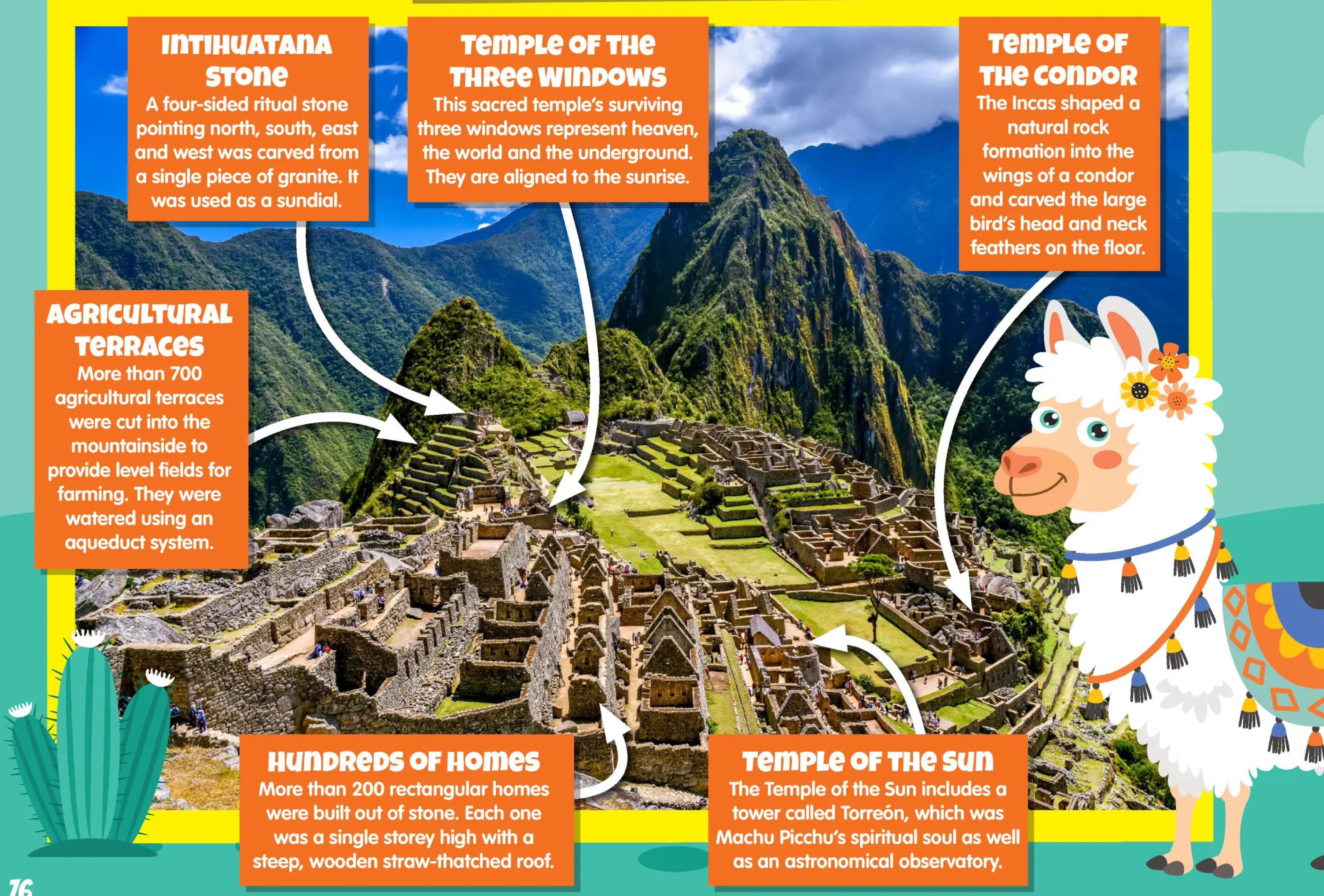
Hiram Bingham was a professor at Yale University in the USA, where he taught South American history, and he was interested in the Inca civilisation. In 1909, he travelled through Peru and visited the ruined hilltop city of Choquequirao, which locals called the Cradle of Gold. He was inspired by the writings of Spanish explorer Juan Arias Díaz, who visited the city in 1710.

Two years later, he returned, this time in search of the Incas' last capital. He found two cities – Vitcos and Vilcabamba – and one of them (Vilcabamba) was actually the last capital. But Bingham didn't know, so he continued on his way. With the help of local farmers, he came across another city about 2,430 metres (7,972 feet) high on a mountain ridge. What he saw took his breath away.

Bingham had rediscovered Machu Picchu, a well-planned city created with the finest stonework. It included carefully carved rocks for ceremonies and many temples and palaces. Human-made agricultural terraces had been built to provide food, and there were hundreds of homes.

Excited, Bingham spread the word, eventually writing a book called *The Lost City Of The Incas*, which inspired others to visit. What's more, he was fully aware of the extent of his discovery. "Machu Picchu might prove to be the largest and most important ruin discovered in South America since the days of the Spanish conquest," he wrote.

MACHU PICCHU



INTIHUATANA STONE

A four-sided ritual stone pointing north, south, east and west was carved from a single piece of granite. It was used as a sundial.

TEMPLE OF THE THREE WINDOWS

This sacred temple's surviving three windows represent heaven, the world and the underground. They are aligned to the sunrise.

TEMPLE OF THE CONDOR

The Incas shaped a natural rock formation into the wings of a condor and carved the large bird's head and neck feathers on the floor.

AGRICULTURAL TERRACES

More than 700 agricultural terraces were cut into the mountainside to provide level fields for farming. They were watered using an aqueduct system.

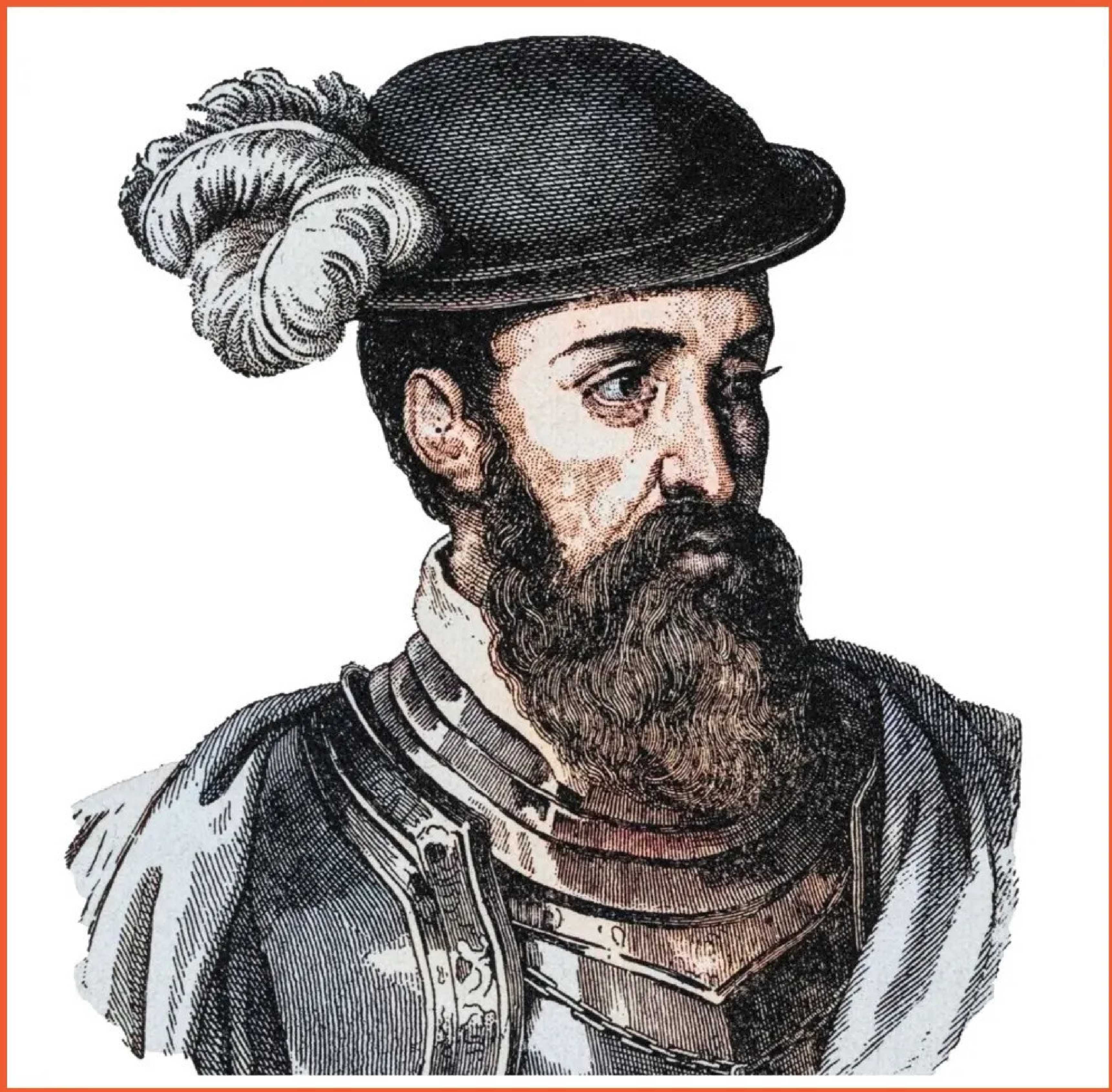
HUNDREDS OF HOMES

More than 200 rectangular homes were built out of stone. Each one was a single storey high with a steep, wooden straw-thatched roof.

TEMPLE OF THE SUN

The Temple of the Sun includes a tower called Torreón, which was Machu Picchu's spiritual soul as well as an astronomical observatory.

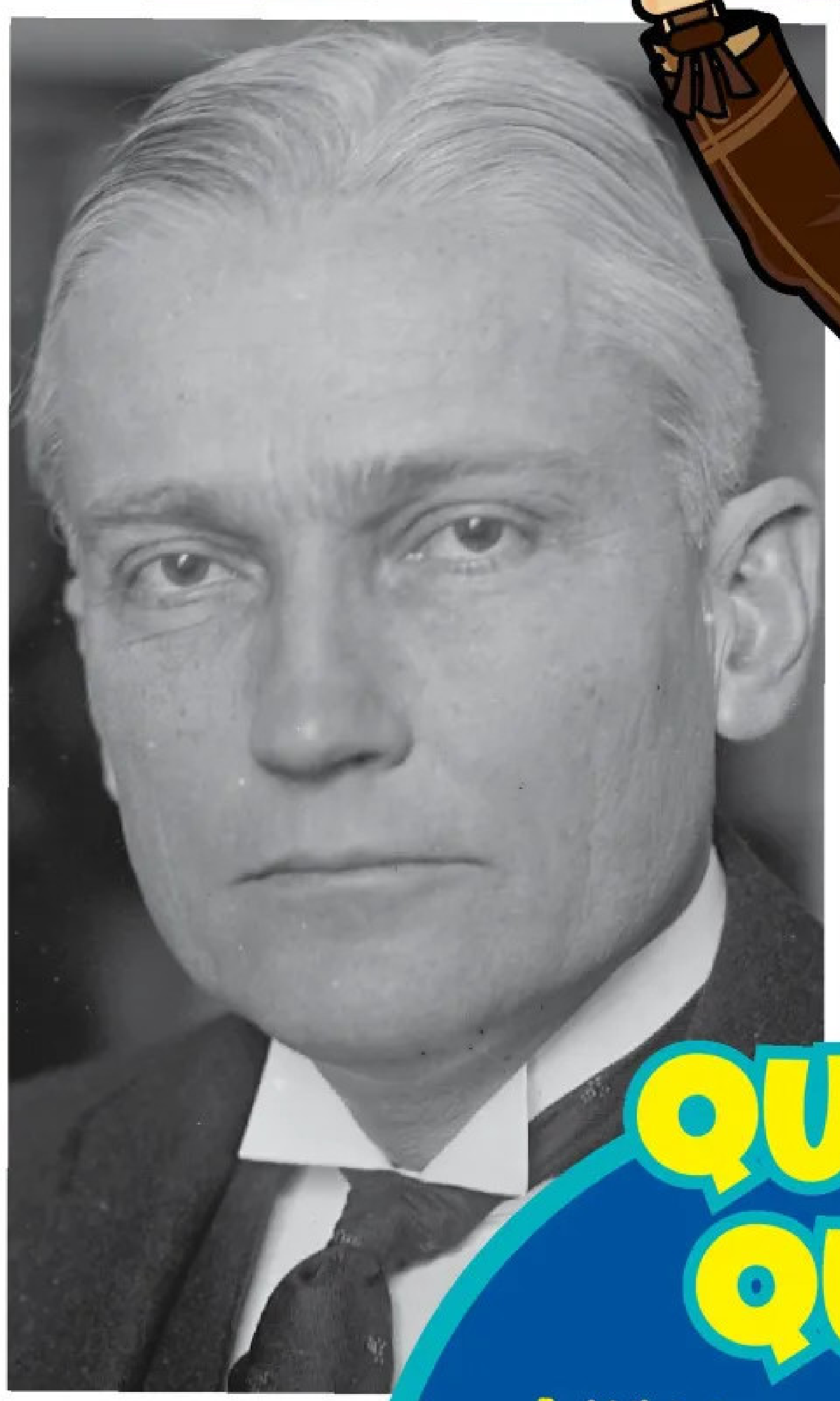
CONQUERING THE INCAS



In 1513, Spanish explorer Francisco Pizarro helped fellow explorer Vasco Núñez de Balboa 'discover' the Pacific Ocean. 20 years later, he established Spain's first settlement in Peru, executed the Inca Emperor Atahualpa and seized the city of Cuzco. He made Lima the new Peruvian capital in 1535, and sparked the beginning of the end for the Inca Empire.

THE MAN WITH THE HAT!

Was the creation of Hollywood's fictional explorer Indiana Jones inspired by Hiram Bingham? No one can say for sure, but there are some similarities. As well as loving an adventure, the two men share a love of hats. Case closed, we'd say!



QUICK QUIZ

1. Which Indiana Jones movie mostly takes place in Peru?
2. As well as a hat, what does Indiana Jones carry with him?

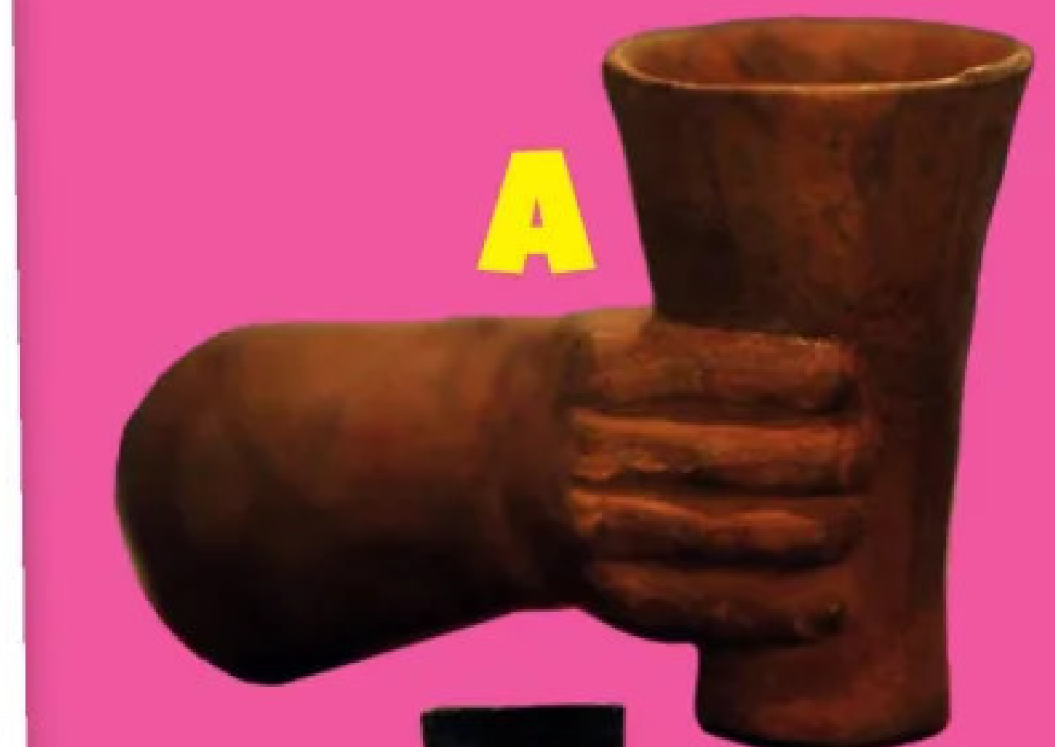
ANSWERS:
1: Indiana Jones and the Kingdom of the Crystal Skull
2: A whip

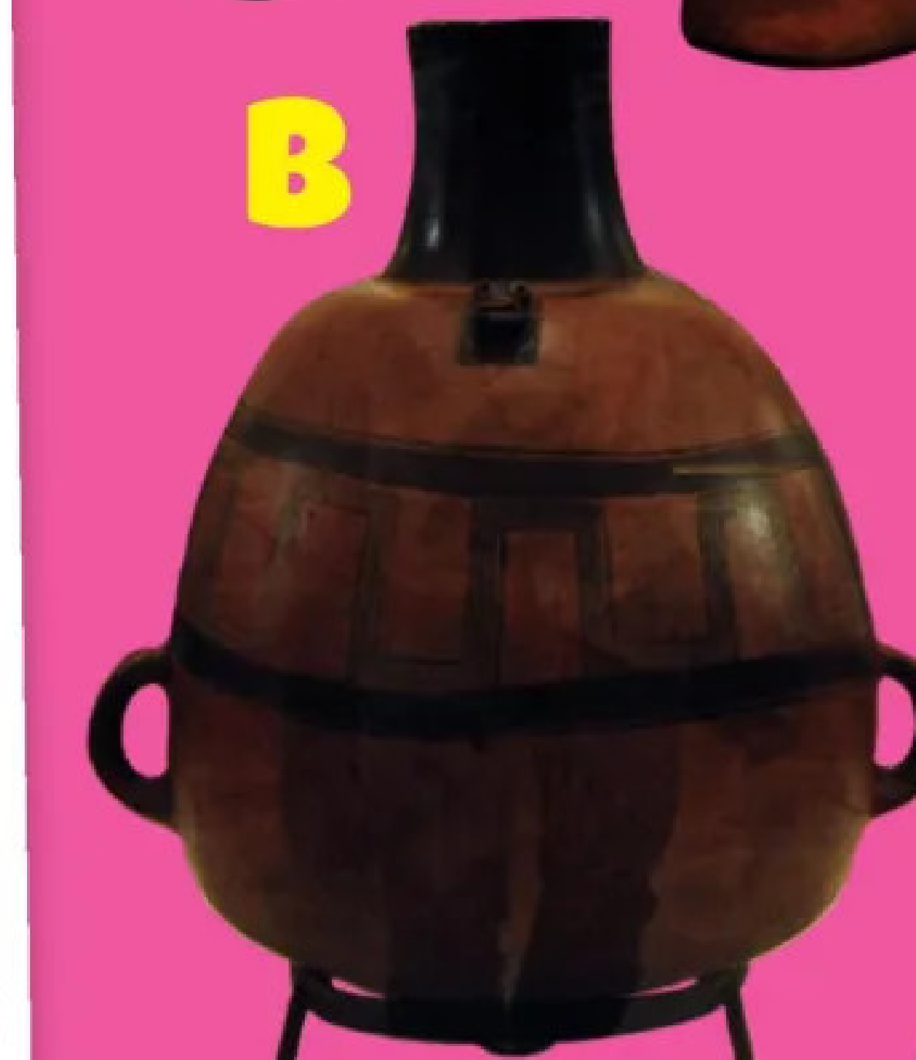
RETURNING THE TREASURES

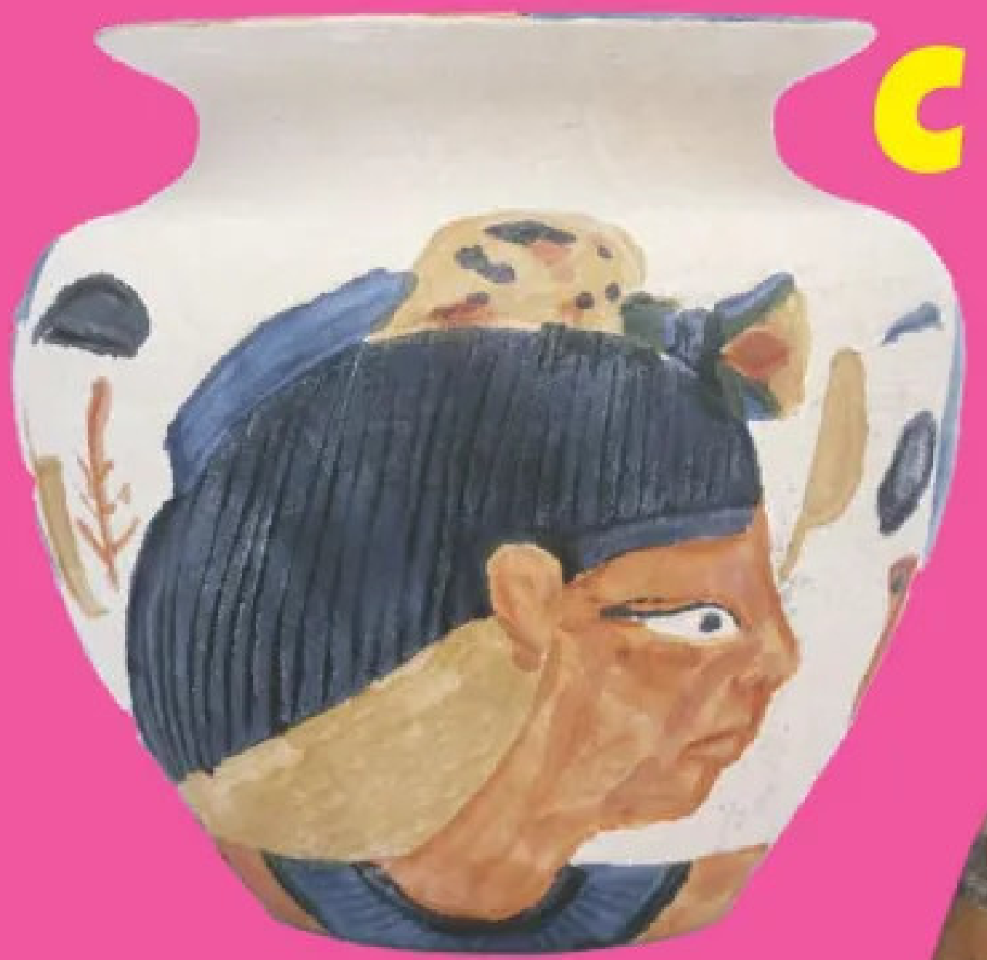
When Machu Picchu was rediscovered, Harry Bingham sent more than 4,000 items of pottery, bones and jewellery to Yale University in the USA. People in Peru did not like this, and the country spent years demanding they be sent back. In 2010, the university agreed to return all of the Inca artefacts it held. The final batch was handed back at the end of 2012.

HIRAM BINGHAM AT HIS TENT DOOR NEAR MACHU PICCHU IN 1912

WHICH ONE OF THESE TREASURES IS NOT FROM THE MACHU PICCHU COLLECTION?

A


B


C


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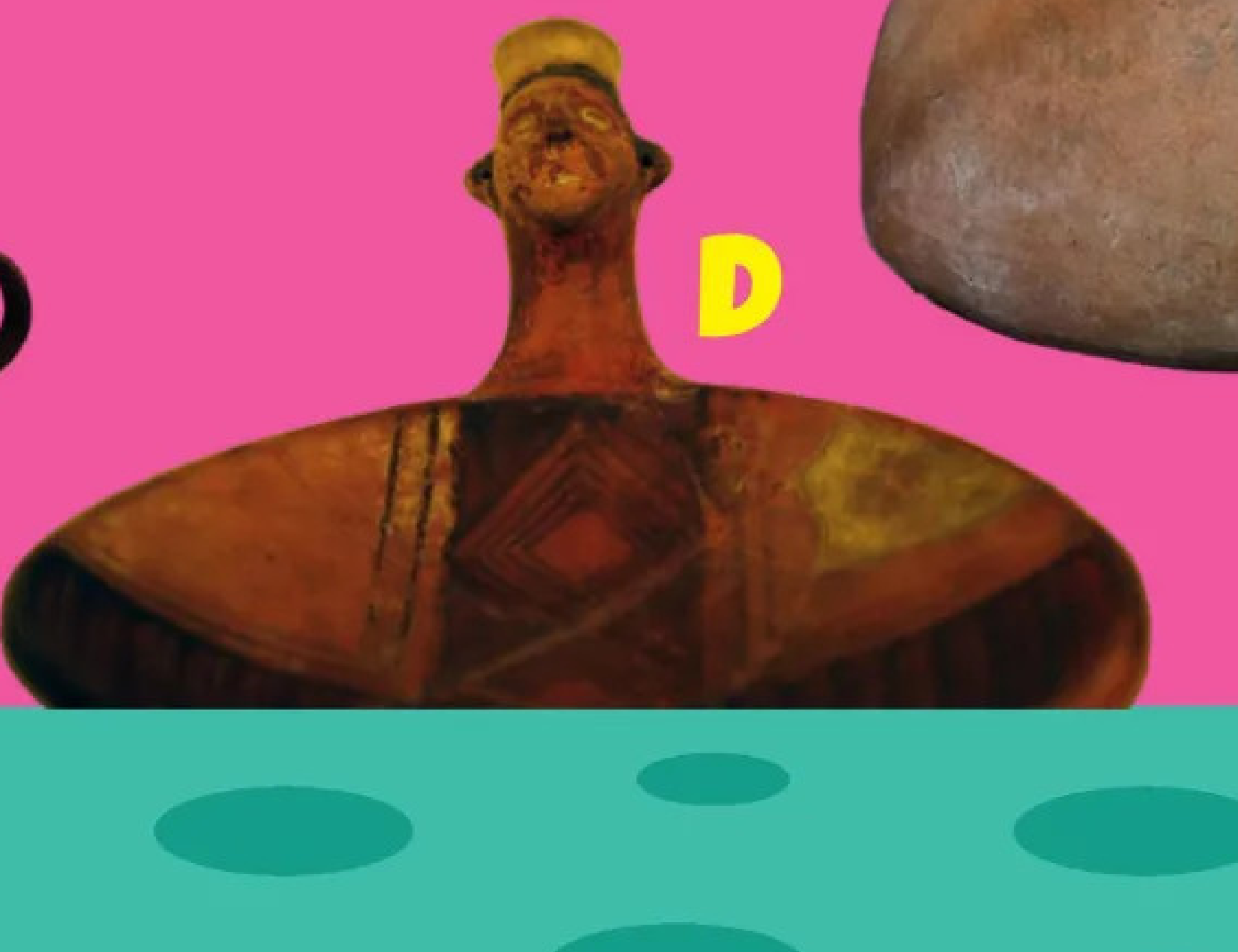
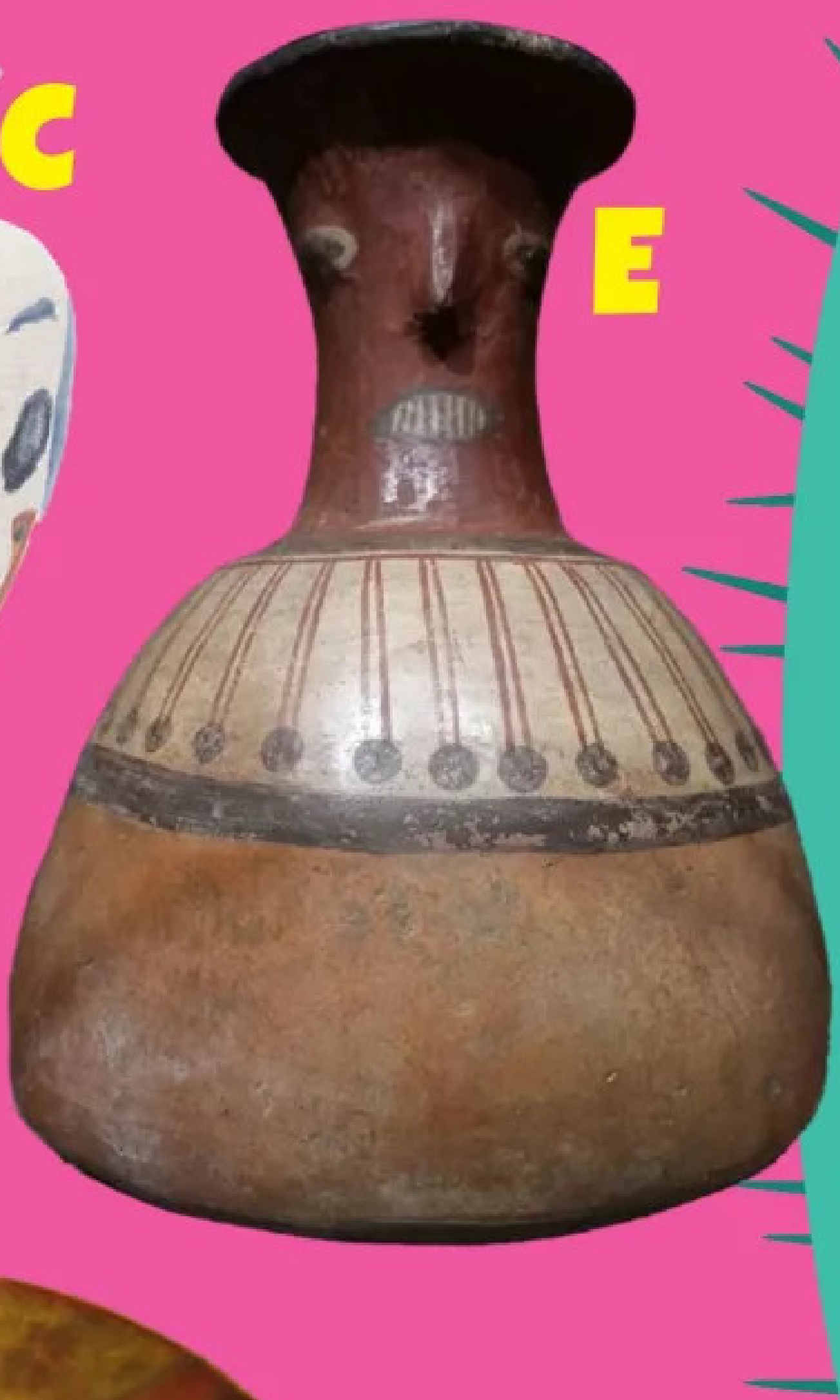


E


ANSWER: C

© Getty Images

JANE DIEULAFOY

For most of the 1870s, Jane Dieulafoy and her husband, Marcel, travelled around Egypt and Morocco. In 1881, the couple found themselves in Persia, which is modern-day Iran. They spent years exploring the area, with Dieulafoy taking photographs and making notes. She also drew many illustrations and wrote extensively about what she saw and experienced.

Since it was difficult for a woman to travel freely in a Muslim country at the time, Dieulafoy said she needed to dress as a man and wear her hair short. She fell in love with Persia, and wanted to return. The couple were particularly excited about an ancient town called Susa. They knew that the British explorer William Loftus had carried out a small dig there 30 years earlier, finding some coins dating back to 678 CE. He said it was one of the world's oldest cities, so the couple decided they would return to the area to excavate further.

After publishing a diary of her expedition in a French travel magazine, the couple went back to Susa in 1884. They were accompanied by a young engineer called Charles Babin and a naturalist called Frédéric Houssay. Together with 300 local people, they began to dig between 1885 and 1886 but it wasn't a comfortable time. Dieulafoy and the team had to live in tents and put up with thieves. Even so, they found palaces buried beneath the hills.

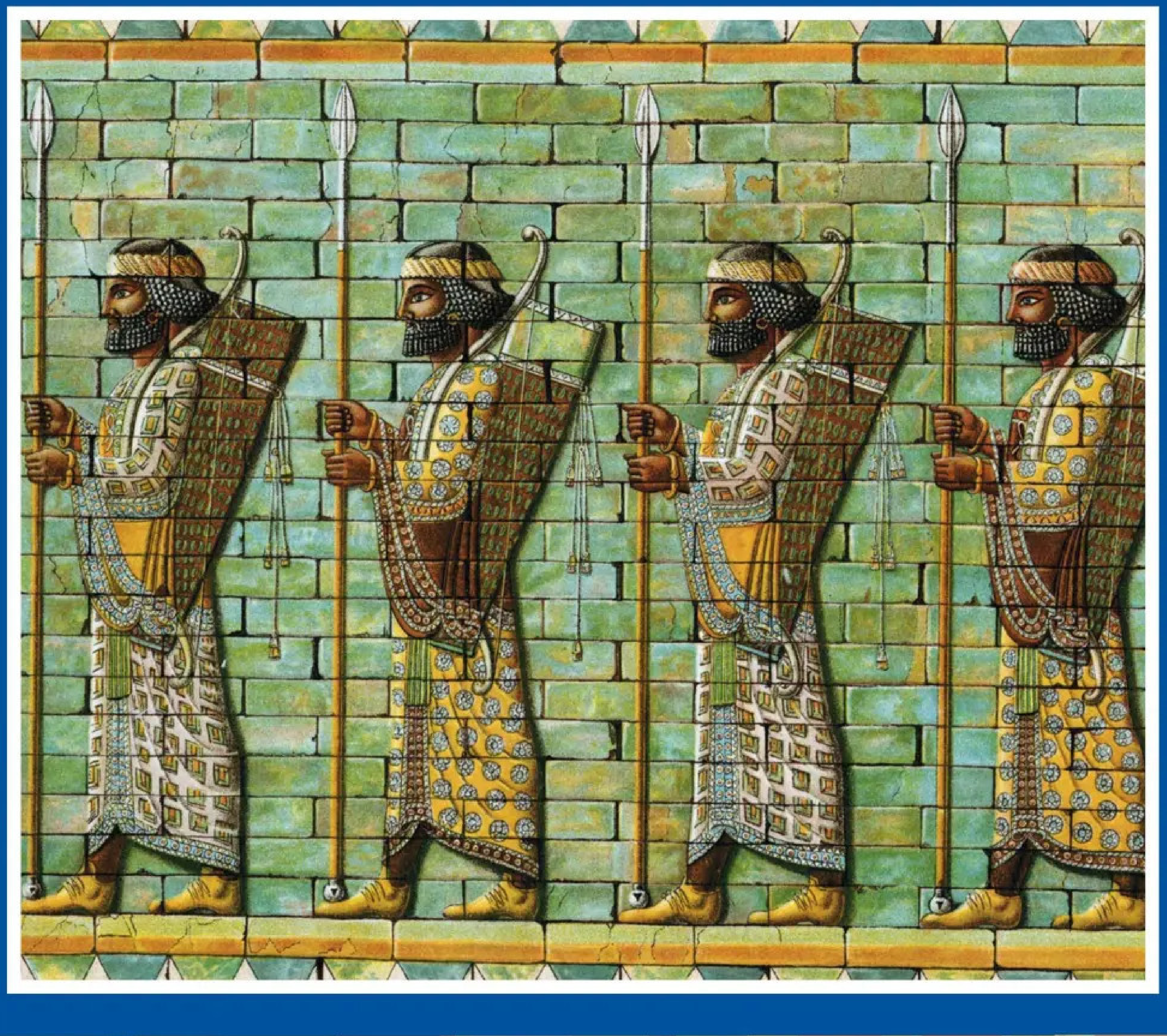
The excavations unearthed great treasures. Among the finds was a frieze of glazed bricks that showed pictures of lions. They also found a frieze showing archers as well as parts of a 70-foot-tall column and stone bull heads. In total, they managed to find 45 tons of items and were sent to be displayed at the Louvre Museum in Paris, France. Dieulafoy was awarded one of France's highest awards, the Legion of Honour.

WHAT A PANTS TIME!

In France in the 1800s, it was illegal for a woman to wear trousers unless she had special permission. Jane Dieulafoy gained a pants permit from the police, and her choice was largely accepted. Newspapers called her an "intrepid explorer who wears men's suits"!

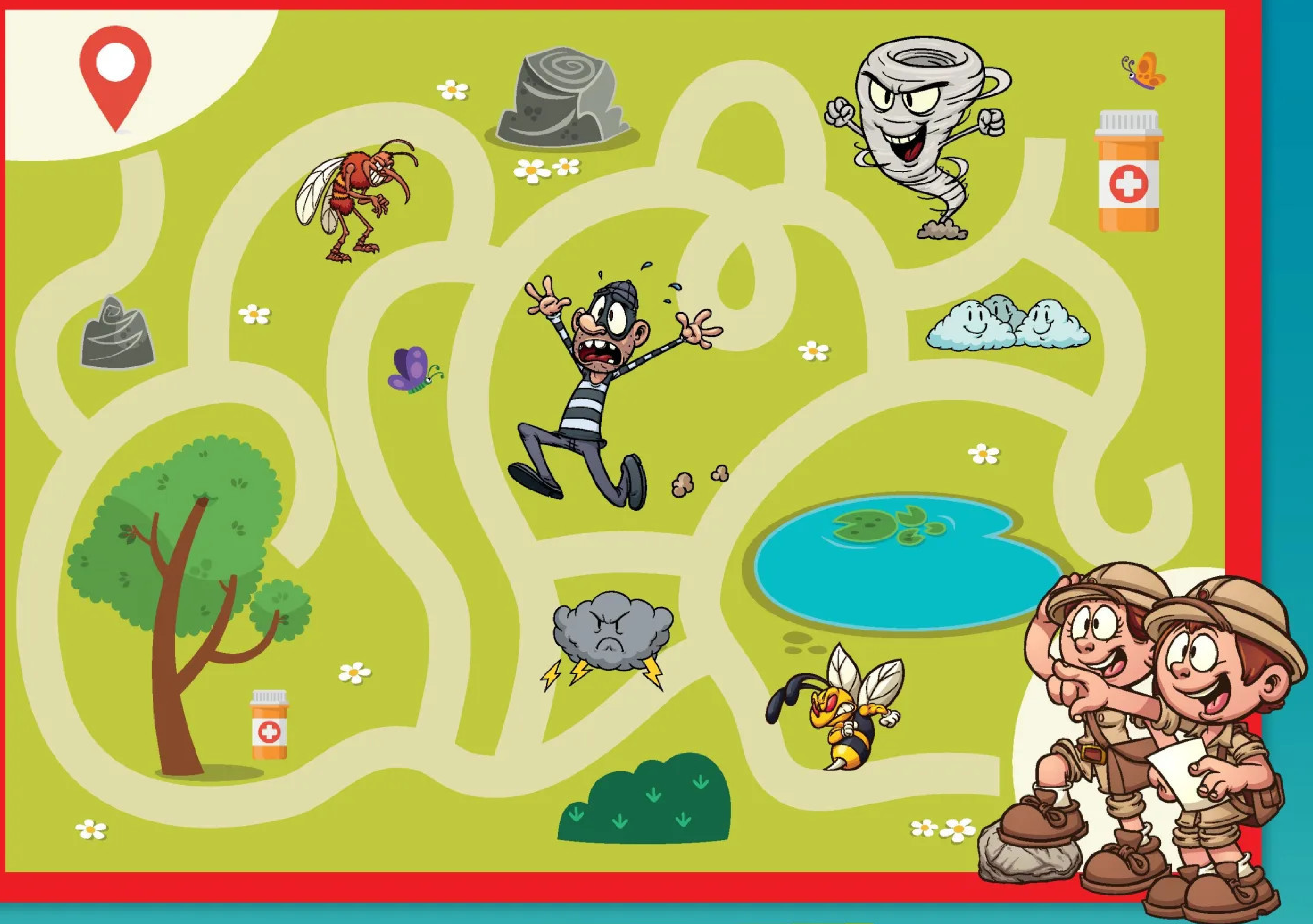
FRIEZE!

This frieze was discovered by the Dieulafoys in Susa from the citadel of Darius I. It dates from 548 to 486 BCE.



PLAN A PERFECT TRIP TO PERSIA!

Jane and Marcel's journey to Persia was not an easy one. As they made their way across 3,700 miles, they encountered insects, thieves and bad weather. They also became ill. **Can you help the couple reach their destination?**



LOVING THE LOUVRE!

Many explorers allowed museums to display their finds. The Dieulafoys's artefacts were put on displays in two halls at the Louvre Museum in Paris, France. Unscramble the letters below to discover other museums that contain items discovered by explorers.

1 HTISIRB
Clue, it's in London

2 NTITEMROOLPA
Clue, it's in New York

3 NAILRSUAATL
Clue, it's in Sydney

4 ICAMAER
Clue, clue, it's in Madrid

ANSWERS: 1: BRITISH 2: METROPOLITAN 3: AUSTRALIAN 4: AMERICA

© Getty Images

END OF HISTORY

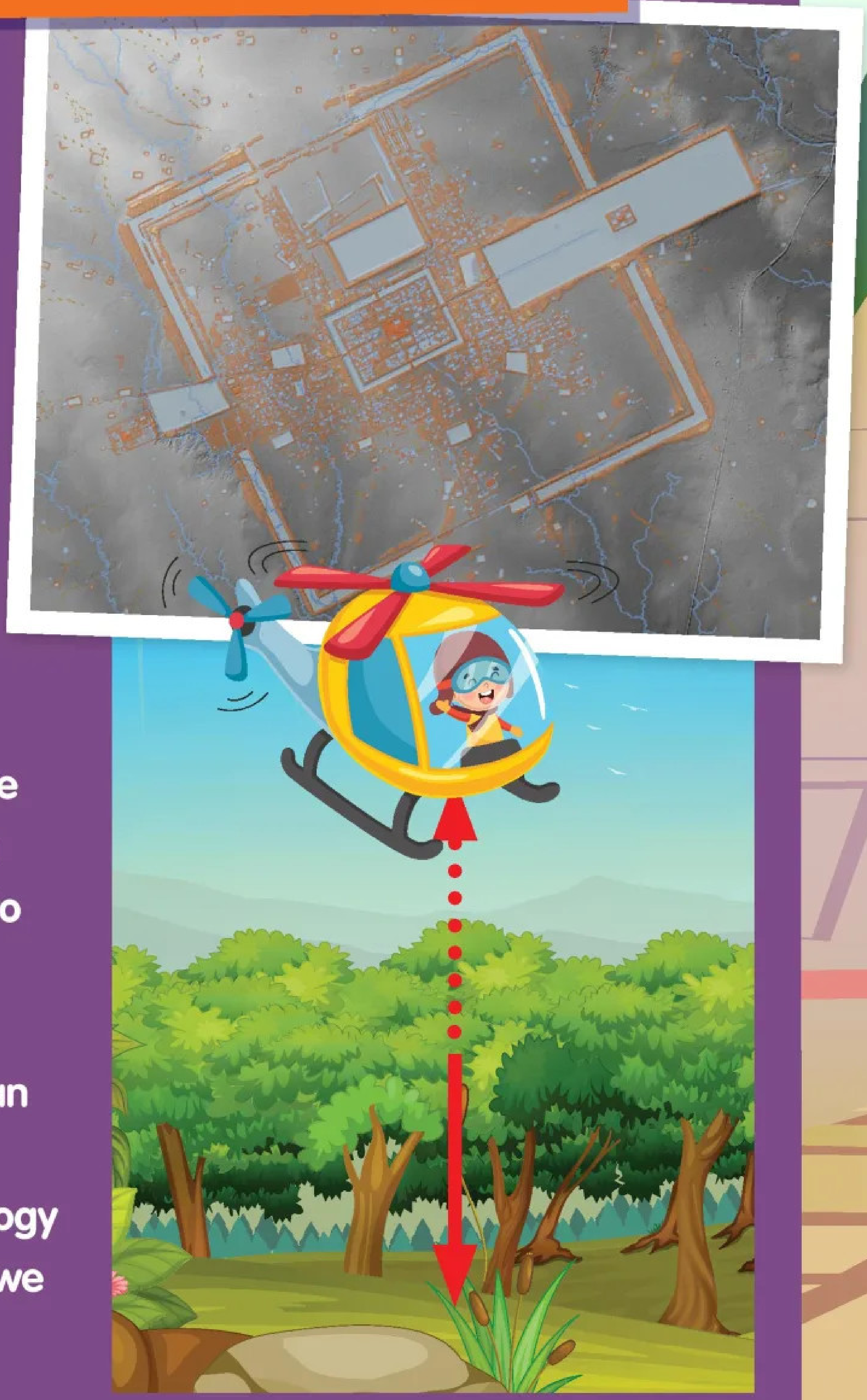
The explorers you have just met made some awesome discoveries, but they also inspired lots of people to find out more. When Mouhot came across Angkor Wat, for example, lots of archaeologists began working on restoring the city. They carried out research to uncover new secrets, andused new technologies, such as radar imaging, when they became available.

Laser technology has been a big help. In 2016, archaeologists used it near Angkor Wat and found that other medieval cities were close by. They discovered that these cities were 900 to 1,400 years old, and together, they showed evidence of a huge empire. Archaeologists have also found out that the population in the Angkor Wat area may have been around 900,000. It's all ultimately thanks to Mouhot.

Similarly, King Tut's tomb continues to fascinate people. Egyptologist Nicholas Reeves, who used to be a curator at the British Museum, wrote a book, published in 2023. In it, he says there may be even more treasures in the tomb, hidden behind secret walls. There may even be another pharaoh in there.

One thing is certain: if it wasn't for explorers such as Mouhot, Carter, Bingham and Dieulafoy, amazing discoveries like these may have remained a secret for much longer. Being curious about the world and wanting to see what's out there is a very good thing!

HOW DOES LASER TECHNOLOGY WORK?



To map the area around Angkor in 2016, archaeologists have used technology called LiDAR, which stands for 'light detection and ranging'. Fitted to a helicopter, it was able to send pulses of light at very quick speed towards the ground. When the light bounced back, a sensor could work out how far it had travelled.

By collecting this data, the LiDAR technology could make sense of all the lumps and bumps on the ground. In a very short period of time, it was able to create an image of a long-lost city hidden by deep vegetation! It was a major breakthrough for the Cambodian Archaeological Lidar Initiative.

If explorers had use of such technology 100 years ago, who knows what else we would have discovered by now?

QUICK QUIZ

WHY NOT TEST HOW MUCH YOU'VE LEARNED SO FAR?

WHY DIDN'T HENRI MOUHOT TAKE A CAMERA WITH HIM?

A: He didn't have the latest model

B: He didn't like his photograph being taken

C: Cameras were too bulky and heavy

D: It was too dark and he didn't have a flash

WHAT WAS ANGKOR WAT?

A: A Hindu temple

B: A shopping centre

C: A football stadium

D: A statue

WHAT WASN'T FOUND IN KING TUT'S BURIAL ROOM?

A: Walking sticks

B: A golden throne

C: Dismantled chariots

D: A map of Egypt

WHICH CITY DID HIRAM BINGHAM REDISCOVER?

A: Cajamarca

B: Machu Picchu

C: Huancayo

D: Rio de Janeiro

WHAT DID JANE DIEULAFOY DRESS UP AS?

A: A lion

B: A man

C: A woman

D: A thief

ANSWERS: C, A, D, B, B.

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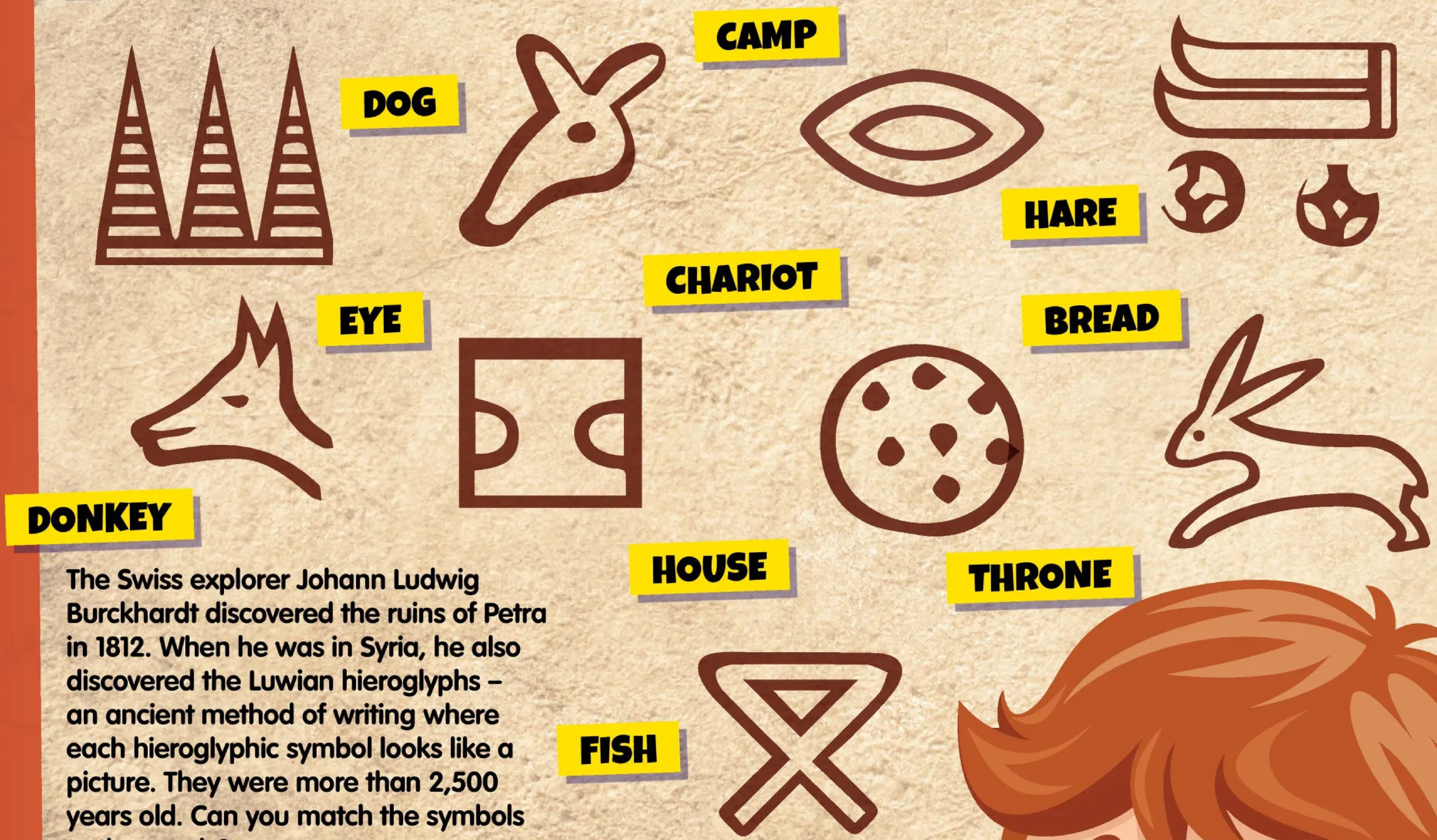
END OF CHAPTER: PUZZLES

HIEROGLYPHIC HERO!


DOG
CAMP
HARE
CHARIOT
EYE
BREAD
DONKEY
HOUSE
THRONE
FISH

The Swiss explorer Johann Ludwig Burckhardt discovered the ruins of Petra in 1812. When he was in Syria, he also discovered the Luwian hieroglyphs – an ancient method of writing where each hieroglyphic symbol looks like a picture. They were more than 2,500 years old. Can you match the symbols to the words?

One of the words above does not have an associated symbol. What do you think it may have looked like? Draw a symbol to represent that word here!

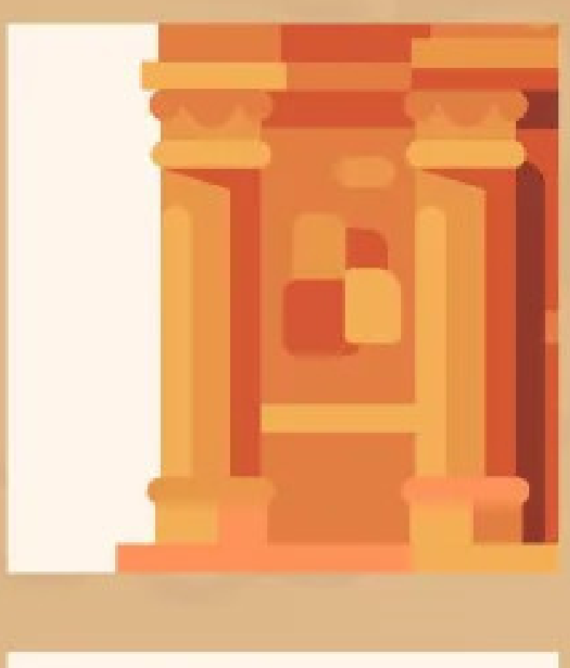
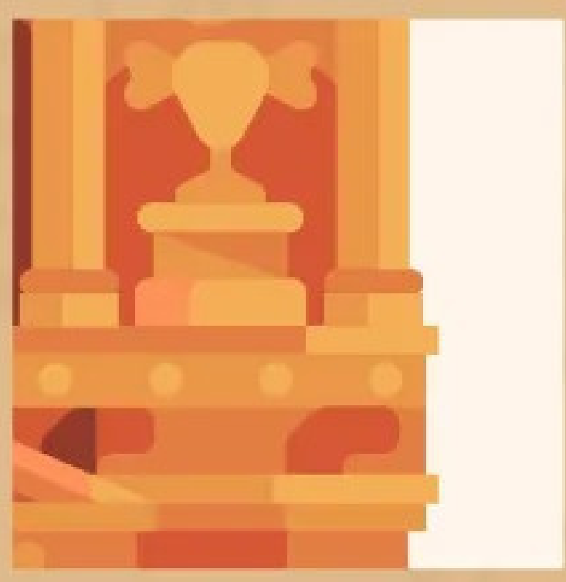
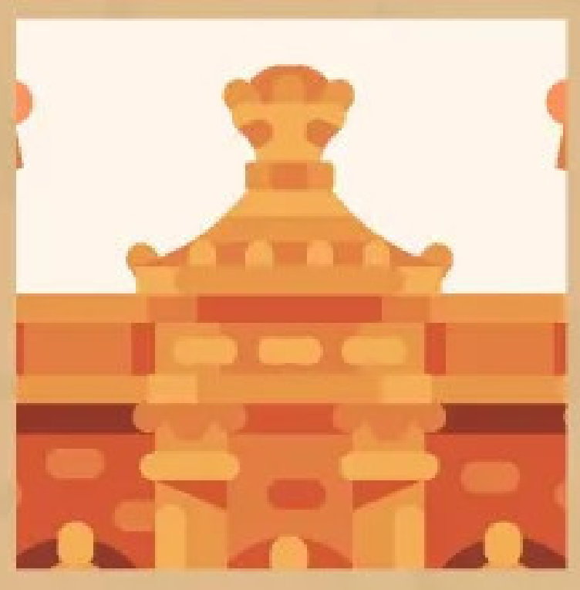
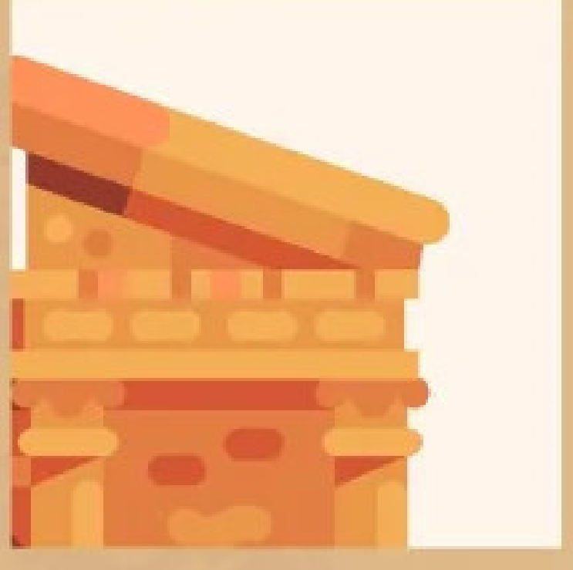
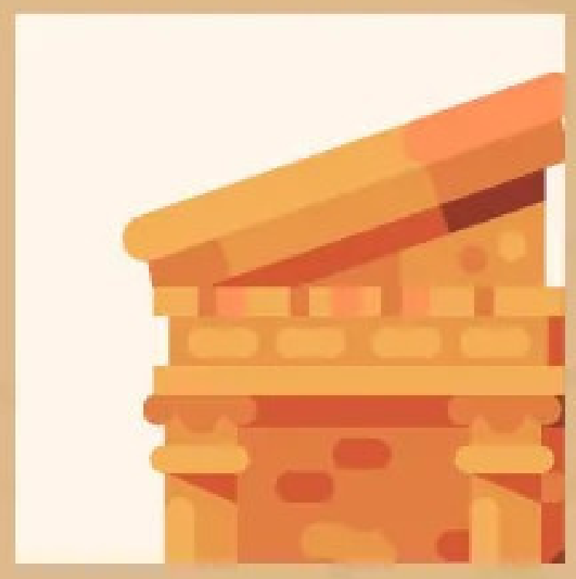
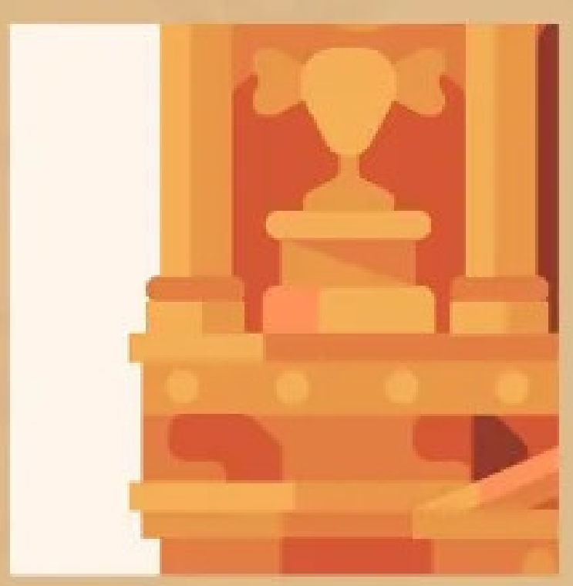
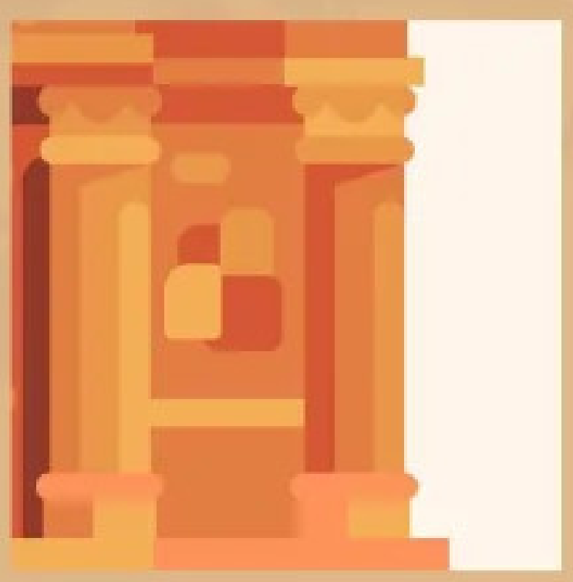
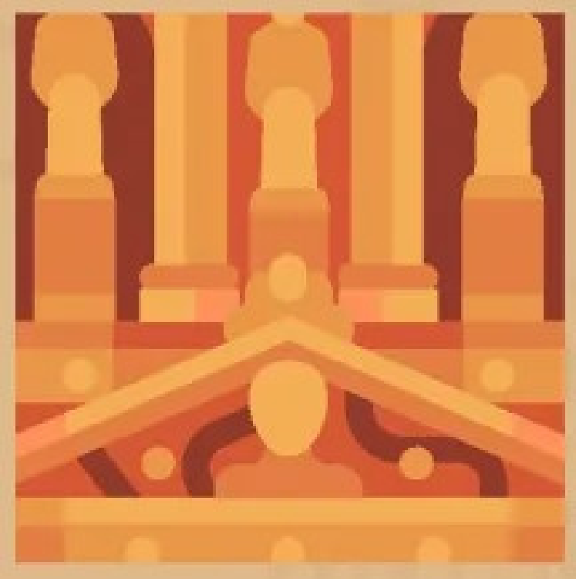
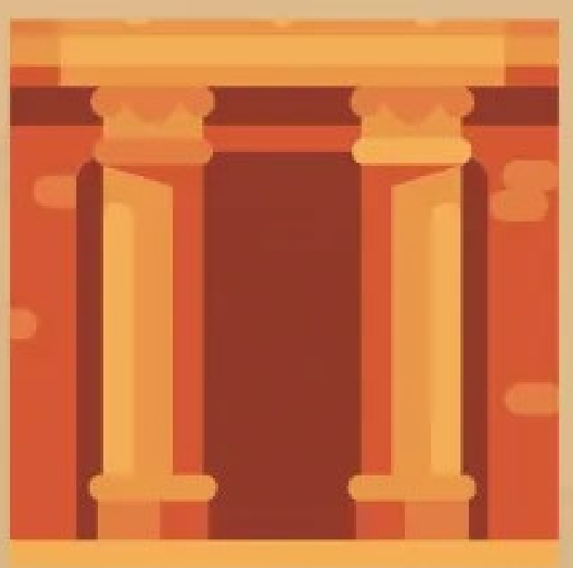
PRETTY PETRA!

FAST FACTS

- Petra is believed to date back to 312 BCE.
- It has been homes to the Edomites, the Nabateans and the Romans.
- An earthquake damaged many buildings in 693 CE.
- Al-Khazneh is 40 metres (130 feet) high.

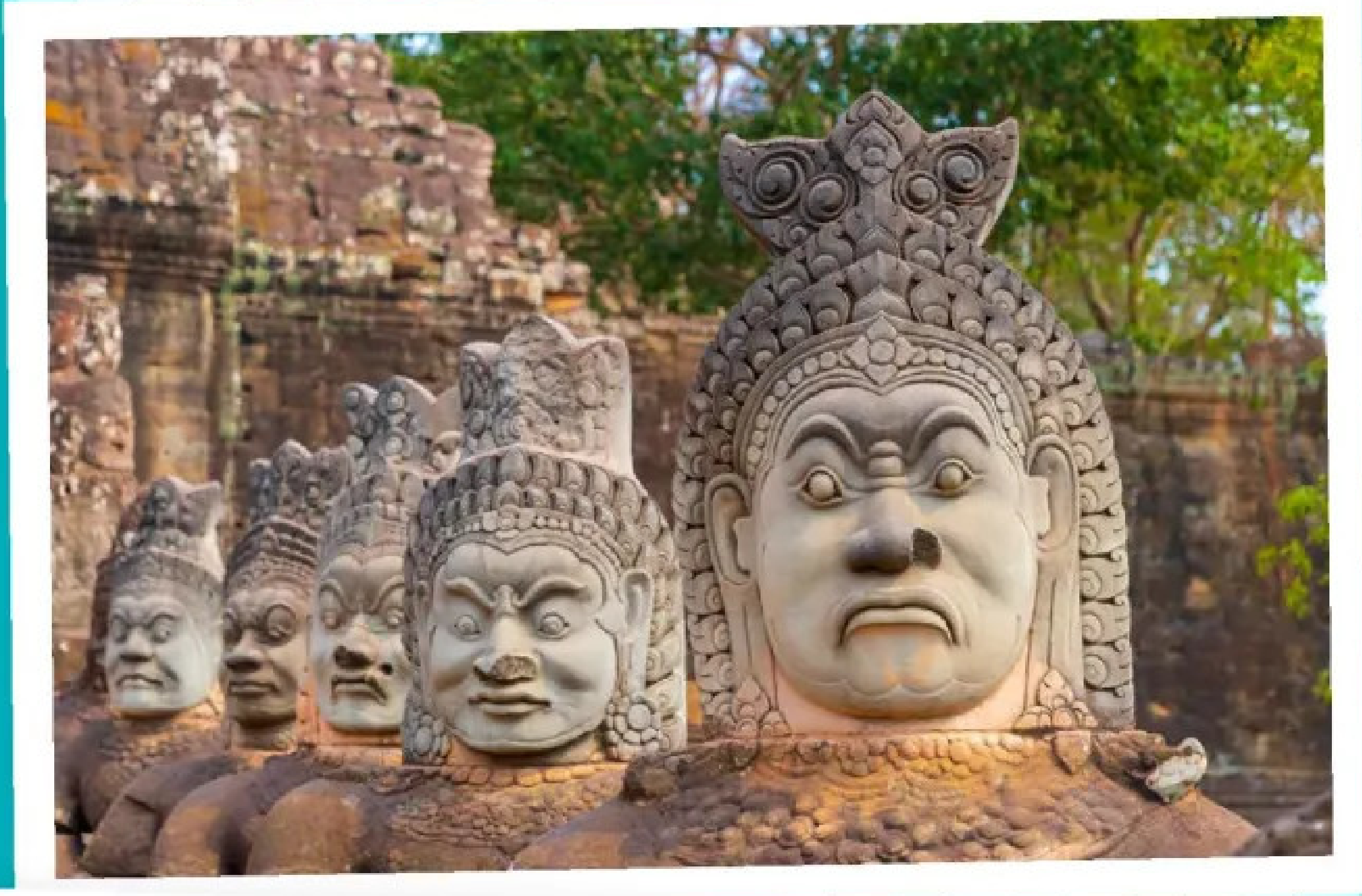
Explorer Johann Ludwig Burckhardt rediscovered the ruins of Petra – an ancient city in Jordan where temples and tombs are carved directly into desert sandstone. He became the first European to see the city on 22 August 1812.

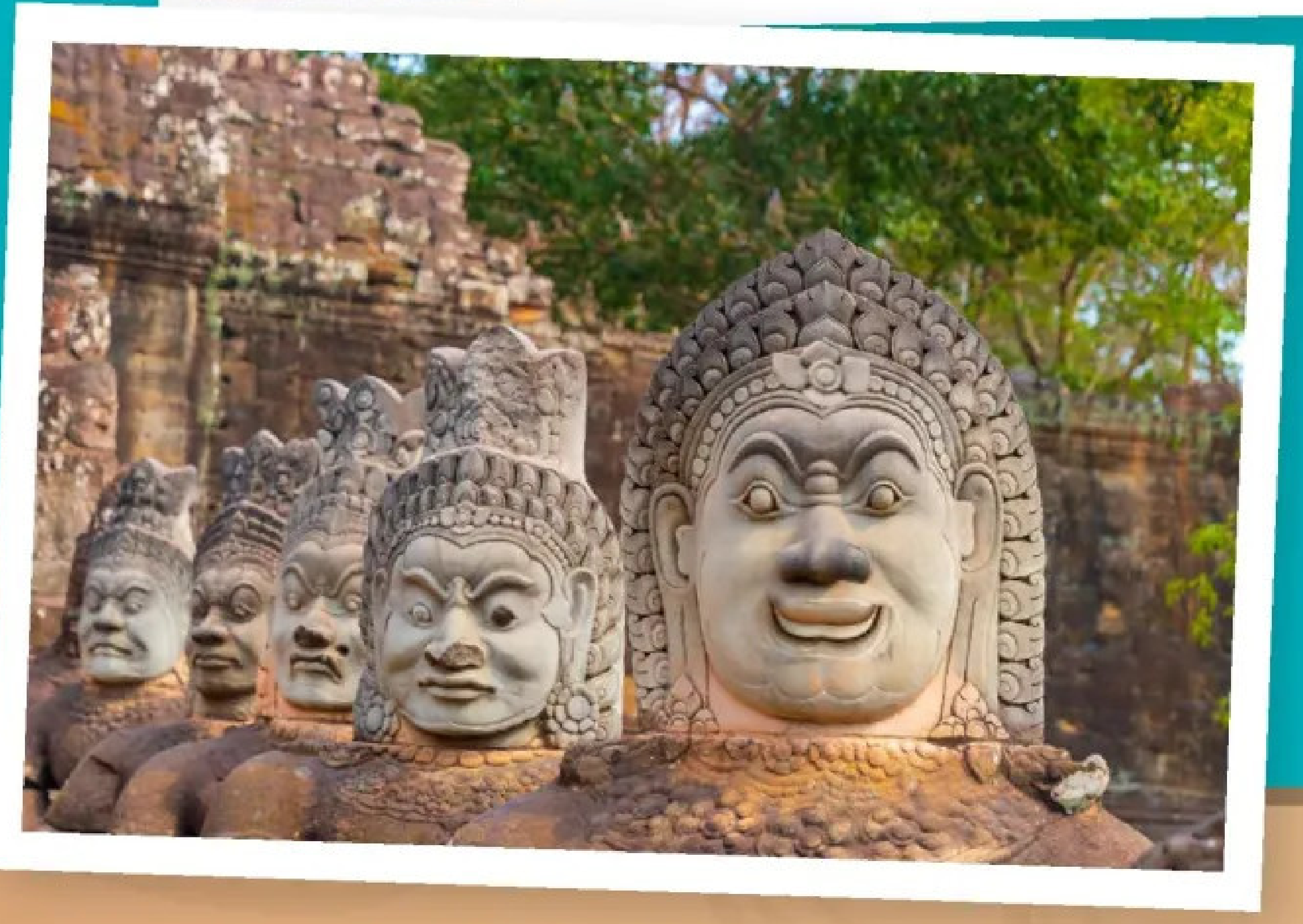
This is the beautifully designed Al-Khazneh, a temple that is also known as The Treasury. Can you help this explorer to piece together its history by working out the order of the different fragments of the building?

SPOT THE DIFFERENCES?

These ancient Hindu statues line the bridge to the south gate of Angkor Thom, a walled city with lots of temples. Can you spot the differences between these two images? The original photo is at the top!





FILL IN THE BLANKS

British explorer Sir Walter Raleigh tried to find the lost city of El Dorado in South America, setting off in 1595. He didn't find it, nor for that matter, did anyone else. The expeditions did mean much of the Amazon River and northern South America was mapped, though.

Find out more about El Dorado by filling in the blanks. Choose from the list of words!

1. People aren't sure if El Dorado even exists. This makes it a ___________ city.
2. It was believed that lots of ___________ was located there.
3. The term was once used to refer to a ___________ .
4. People have searched for El Dorado for more than 500 ___________ .

KING **YEARS** **MYTHICAL** **GOLD**

© Getty Images

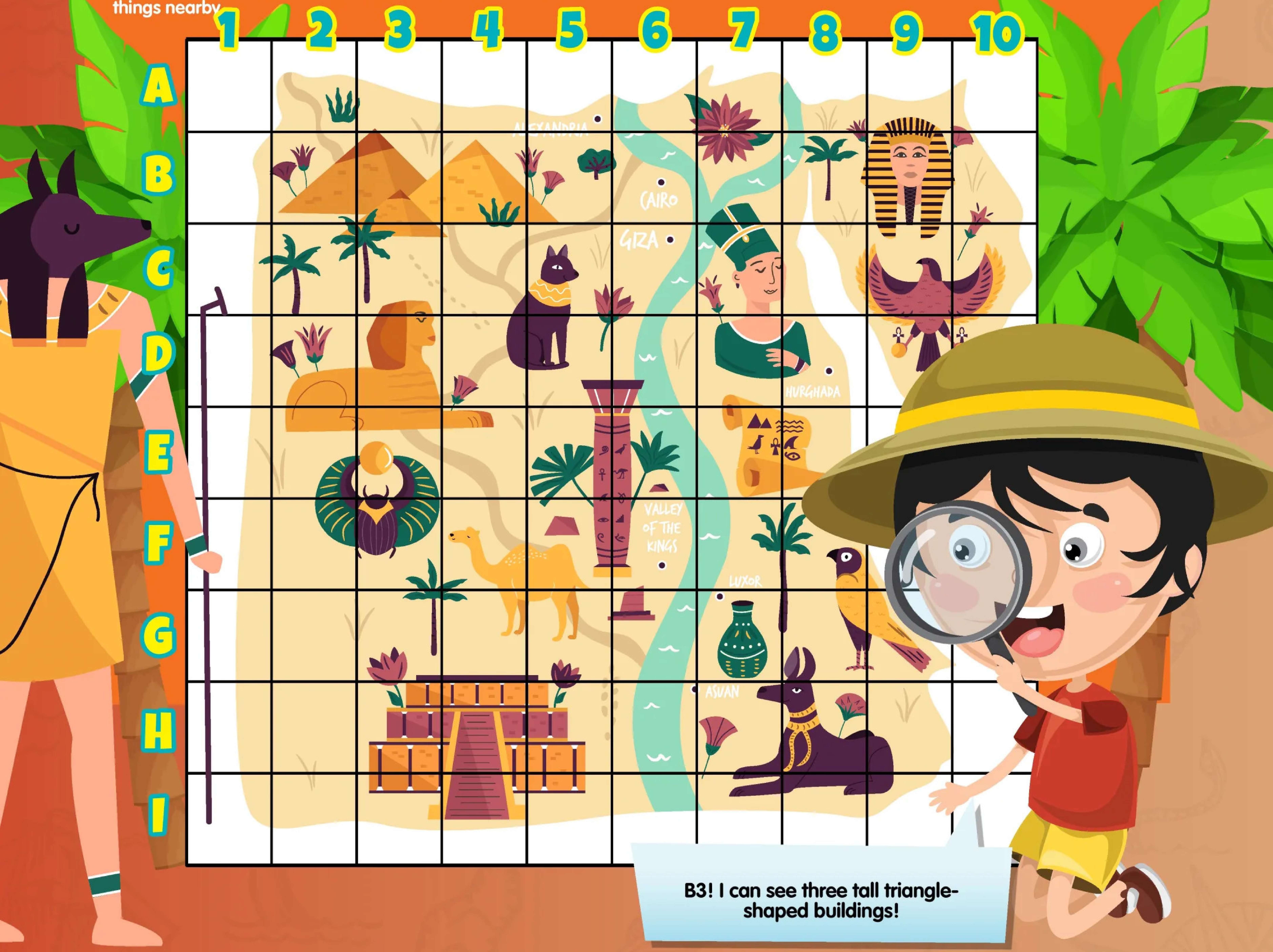
ANSWERS: 1. Mythical, 2. Gold, 3. King, 4. Years

MAKE HISTORICAL DISCOVERIES

Making historical discoveries is not easy. In some cases, explorers have stumbled across a long-forgotten piece of land, and sometimes they are directed there by others.

Imagine you are an explorer taking instructions from a local person asking you to visit and see many wonderful things nearby.

Find the location on the map, pay it a visit and describe what you can see. Remember: explorers would try to explain what they saw to other people when they returned from an expedition.


1
2
3
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7
8
9
10
A
B
C
D
E
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H
I
ALEXANDRIA
CAIRO
GIZA
HURGHADA
VALLEY OF THE KINGS
LUXOR
ASUAN
B3! I can see three tall triangle-shaped buildings!

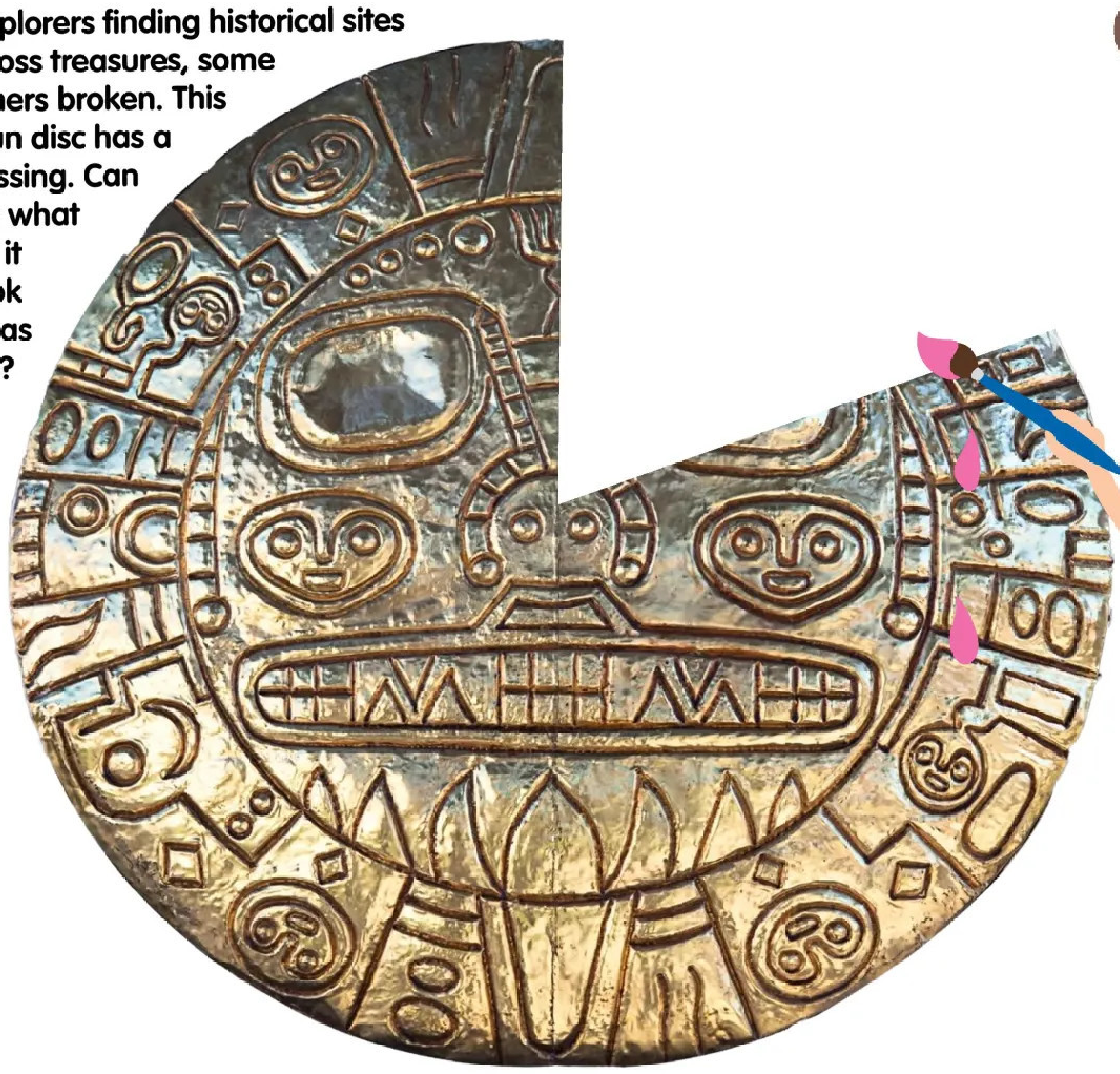
WORD GAME

Col Percy Harrison Fawcett tried to find the Lost City of Z – the name he gave to the indigenous city. Despite searching in the Amazon, he never found it. How many words can you find from its name?

THELOSTCITYOFZ

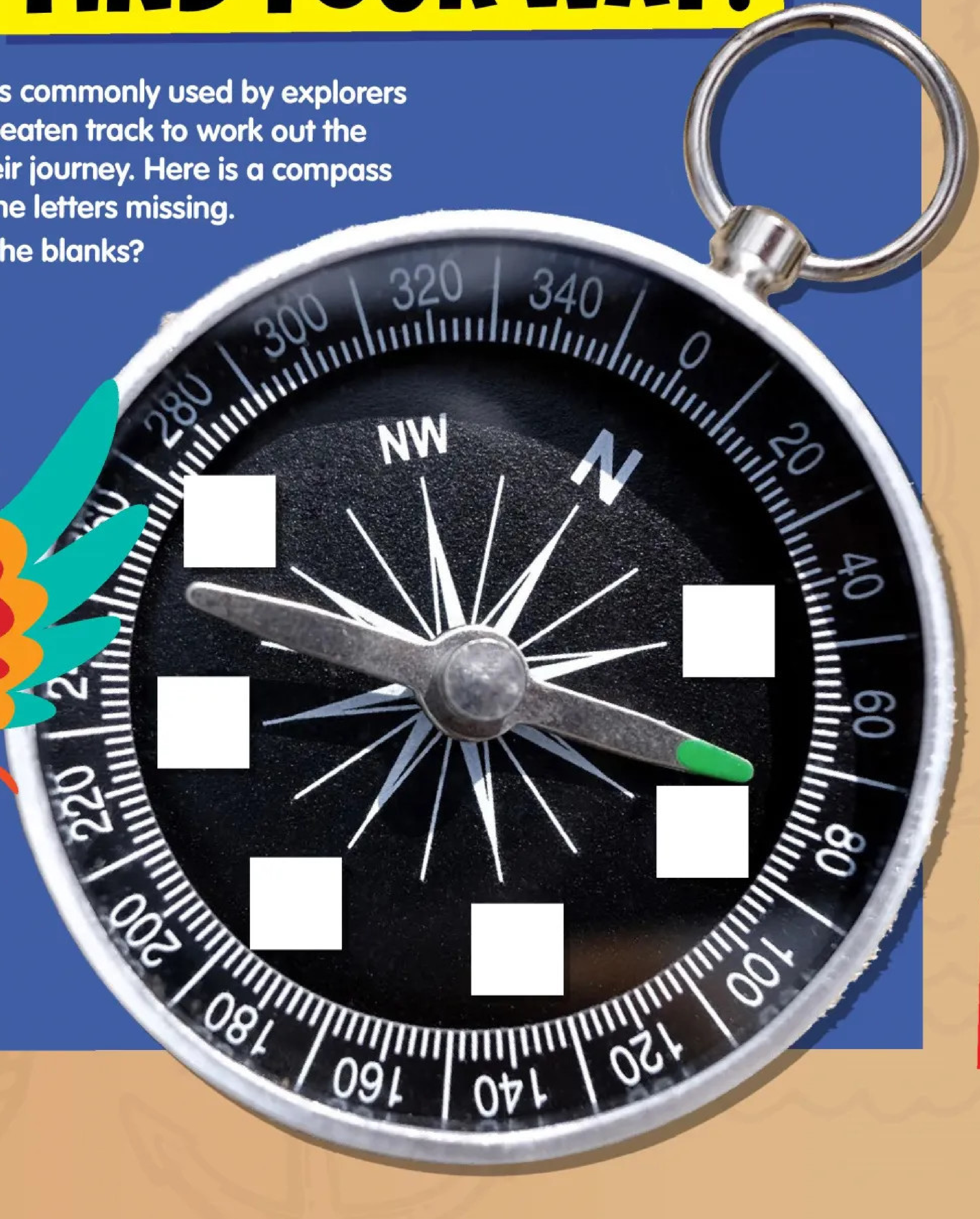
FINDING TREASURE

Lots of explorers finding historical sites came across treasures, some intact, others broken. This golden sun disc has a chunk missing. Can you draw what you think it would look like if it was complete?



FIND YOUR WAY!

A compass was commonly used by explorers going off the beaten track to work out the direction of their journey. Here is a compass with some of the letters missing.
Can you fill in the blanks?



YOUR JOURNEY HAS COME TO AN END... OR HAS IT?

You've enjoyed learning about the different kinds of explorers – those who have made amazing discoveries past and present across land, sea and air. You should now have a much better understanding of the greatest explorers and their work. But while this part of your journey comes to an end, you can start exploring your own surroundings. Over the next few pages, we're going to be sharing many activities you can do to learn more about what's around you, whether you're at home or away!

EXPLORER ACTIVITIES TO TRY AT HOME!

So far, you have learned all about the different types of explorers. You have discovered all of the amazing contributions they have made to the world – and some of the negative impacts of exploration, too! By meeting some of the greatest explorers, you have also gained an insight into their mindsets. Not only have you learned about their individual success, but you should have a better understanding of what motivates them, too.

Now, it is your turn. Over the next few pages, you can become an explorer, too. You will learn how to make use of essential tools such as a compass and GPS, and get out and about to study your environment in greater detail, having lots of fun doing so. As you will see, there are many ways of exploring the world around you, from geocaching to scavenger hunts. You will even find ways of going on adventures while not even leaving the house!

In most cases, you won't need anything special. A lot of the materials for the projects can be found around your home. If you don't have certain items, they can be picked up relatively cheaply. So let's get started on the final part of your adventure – it's time for you to become a real-life Indiana Jones!

BECOME AN EXPLORER!

There are lots of explorers working today, trying to discover more about the world. Many are funded by *National Geographic*, and they help to reveal more about life on Earth. Some dive deep underwater, climb mountains or visit underground caves. There are explorers who travel across land, helping to protect wildlife and the planet. Each one is curious and driven to make a difference and share their discoveries.

EXPLORING HUMAN ORIGINS

Paleoanthropologist Lee R. Berger has made many significant discoveries at the Cradle of Humankind Heritage Site in South Africa — including two previously unknown species of humans!

CLIMBING MOUNTAINS

Dr Alison Criscitiello led an expedition to the summit of Canada's highest peak, Mount Logan. The goal was to retrieve a 300 metre (900 foot) deep ice core contains information about past temperature, sea surface conditions, volcanic ash fallout and wildfire history.

WATCH THIS!

THIS IS WHAT A NATIONAL GEOGRAPHIC EXPLORER LOOKS LIKE!

SCAN WITH YOUR PHONE OR TABLET

https://bit.ly/4099Z95

© Getty Images, National Geographic

EXPLORE THE WORLD!

IT'S TIME TO STEP INTO THE SHOES OF AN EXPLORER AND DISCOVER MORE ABOUT THE WORLD AROUND YOU!

CREATE A COMPASS

A compass is an essential tool when exploring. It allows the user to find the right direction because the needle always points towards the magnetic north. Although this is different to the geographic North Pole, it still ensures that explorers can work out where they should be heading. Once you know where north is, you can work out where south is (directly opposite) along with east and west (to the right and left!). With this activity, you're going to be able to make your own compass!

WHAT YOU'LL NEED

- Sewing needle
- Magnet (a fridge magnet would work)
- Cork
- Small bowl
- Pen

INSTRUCTIONS

1. Cork is often used to seal bottles of wine. If you can't get hold of an old cork from a finished bottle, they can be bought online or in some shops (just make sure it's 100 per cent natural cork). Ask an adult to slice about 7mm (0.25 inches) from the top of the cork. You will now have a thin disk of cork.

2. Grab hold of the needle, but be very careful, because needles are sharp. Now, rub one end of the needle along the magnet. Make sure you make your strokes in one direction and keep rubbing – as many as 40 to 50 times if you're using a weak fridge magnet. You will magnetise the needle, ready for use!

3. Again, ask an adult to help you with this bit. The needle needs to be pushed all the way through the side of the cork so that it ends up coming out of the other end. An easy way to do this is to grip the needle tight with pliers as you push it through. Otherwise, just stick the needle to the top of the cork.

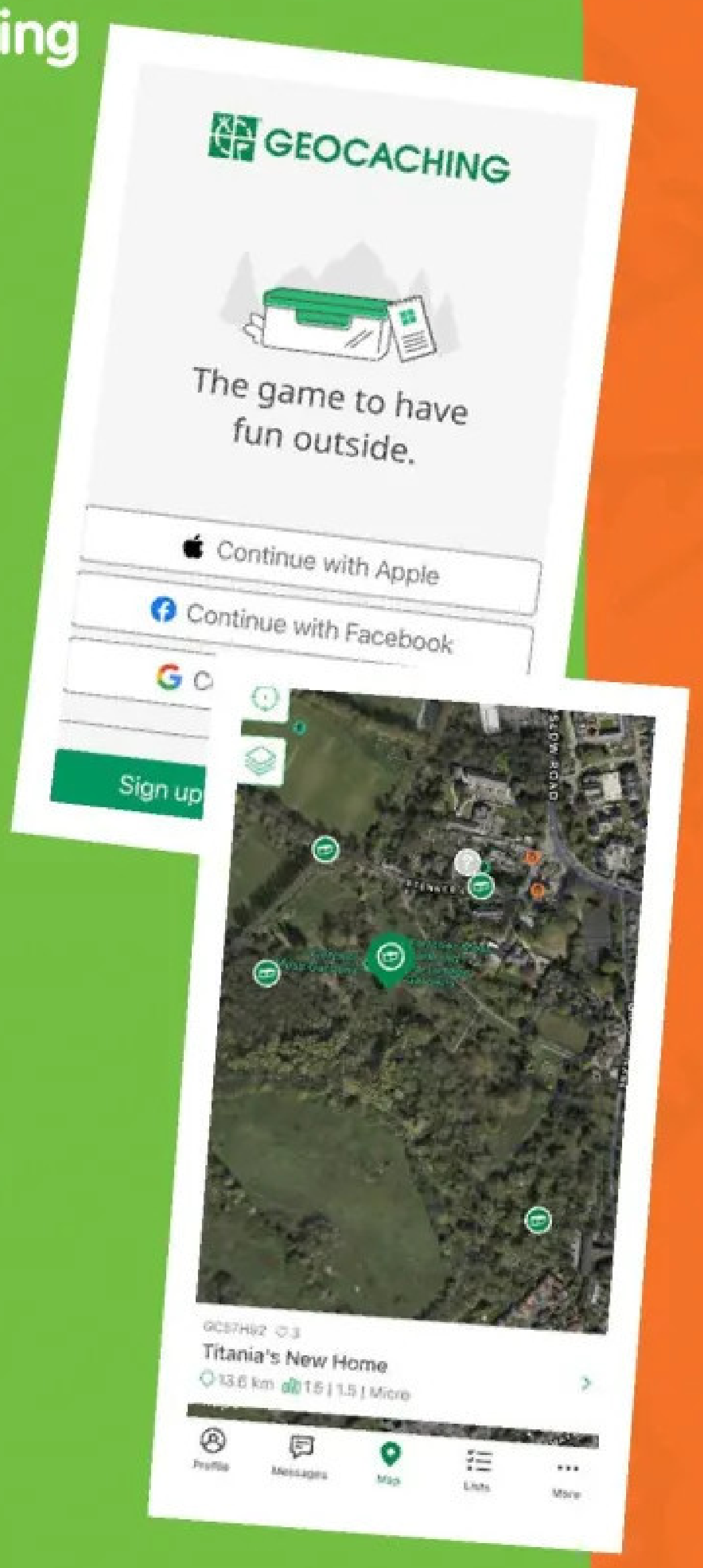
4. Ensure that your small bowl is filled about half-way with water and place the bowl on a flat surface. You can now put your cork/needle combination into the water and watch as it floats. The needle will spin momentarily and rest when it points from north to south. Write the poles on the cork!

WHAT DID YOU LEARN?

The needle will point towards the magnetic north – by magnetising the iron particles in the needle, it is able to line up with Earth's magnetic field. You can check the direction by using a compass on a smartphone and that will enable you to mark the cork as North, South, East and West.

GO GEOCACHING!

Geocaching involves searching for a treasure box that has been hidden outdoors. You can discover the whereabouts of a local container by signing up to a geocaching service. This can be done via a smartphone app, which will give you the longitude and latitude coordinates of the treasure (also known as a cache). By using the phone as a global positioning system (GPS) device, you can navigate towards the container. As you do so, the app will display a map on the screen, but it won't give you precise directions – only how far away you are.



The game to have fun outside.

WHAT YOU'LL NEED

- The official Geocaching app
- Sturdy shoes
- Weatherproof coat (depending on where you're going)
- Water
- Snacks
- Some gifts
- Torch
- Pen

INSTRUCTIONS

1. Ask an adult to download the app on an iOS or Android smartphone (find links at https://www.geocaching.com/play) and sign up. There is a paid-for premium option, but just click the X in the corner of the screen for the basic version.

2. Allow the app to use your current location. Now, tap the Map icon at the bottom of the screen. You can either scroll around the screen to view any nearby caches or tap the magnifying glass icon to manually search for them.

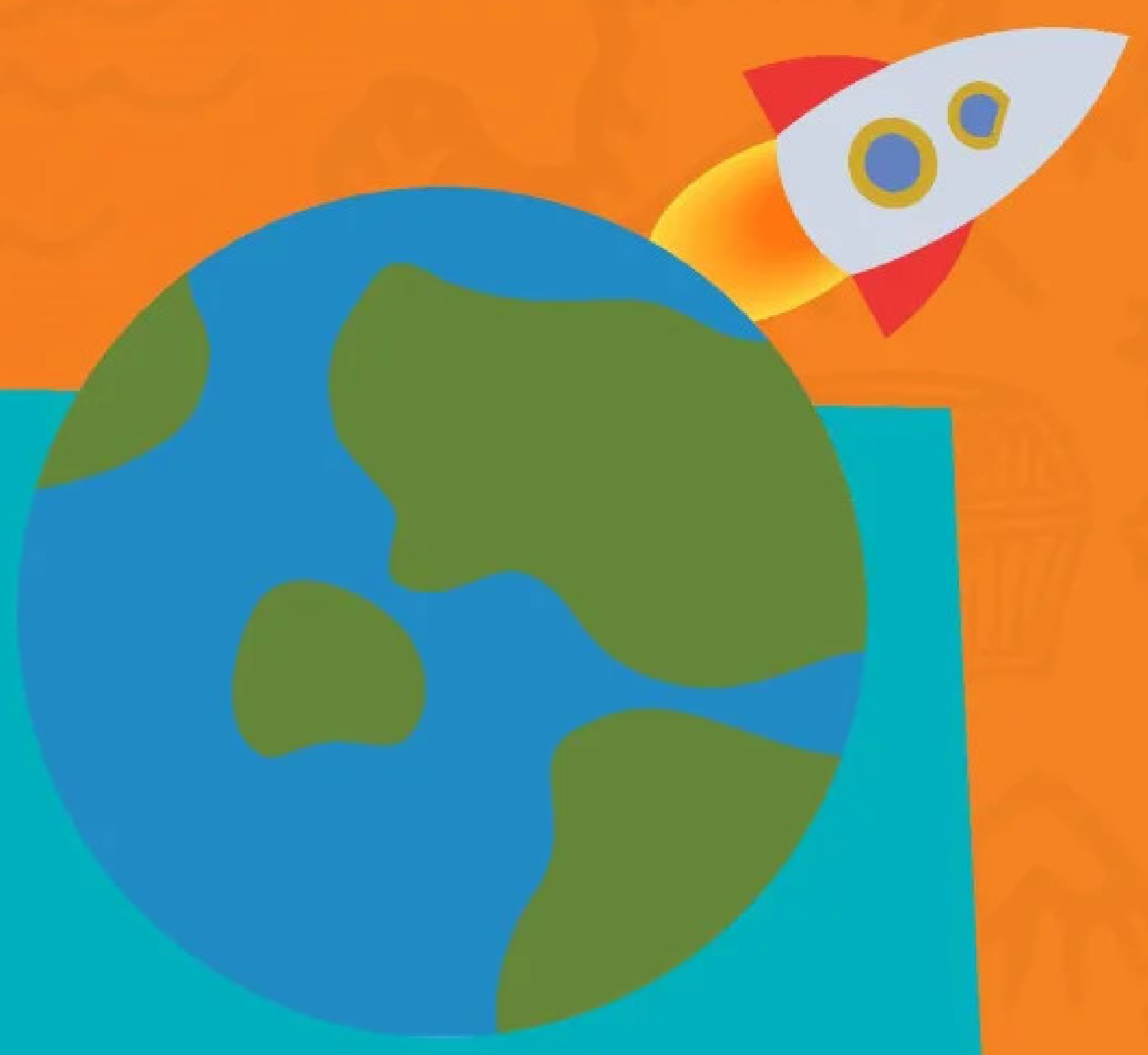
3. You can tap on any of the green cache icons to learn more about it. You will be told how difficult it is to find (including whether you will need to trample over rough ground) and you can see how large or small the cache is going to be.

4. Tap Navigate to see how far away the cache is and check out which direction it is located in. Make your way there and, at the destination, keep your eyes peeled for anything unusual. Caches can be disguised as natural objects.

5. Once you have found a cache, you can take an object from it. If you do, add a gift of your own for the next person. There will be a logbook with the cache, so write your name in it and detail your experience.

WHAT DID YOU LEARN?

As well as learning that geocaching is great fun, you will now understand how useful maps are in allowing you find things. You will have also made use of GPS, which works by making use of signals being sent out by more than 30 navigation satellites circling Earth. When using the app to navigate, be sure to use the compass view. This shows you the direction you should be heading without displaying a map, and it's particularly useful when you're near a cache, because you can work out the general direction of the treasure.



SEE THE WORLD WITH FRESH EYES!

There are many awesome discoveries to be made in the area where you live, but you may not be looking closely enough to see them. Being an awesome explorer often means keeping an eye for unusual things – stuff that you can tell others about! When travelling from one place to another though, you may be focusing more on the destination rather than the journey. In this activity, we're going to ask you to look at your surroundings in greater detail. Who knows what you may find?

WHAT YOU'LL NEED

- Pen
- Paper

INSTRUCTIONS

1. First of all, start by copying the chart below on to a piece of paper.

2. Now, make the same journey each day (maybe your trip to and from school).

3. Make a note of what you saw each day. Try to look for something new.

	TIME	WHAT DID YOU SEE?	WHY IS IT THERE?
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			

WHAT DID YOU LEARN?

By paying greater attention to your surroundings, you will become more curious and inquisitive. You will even find that you can concentrate better. The world can be a beautiful place, and exploring it in detail can help you to appreciate it more.

WHAT IS THE MAGNETIC FIELD?

What has a north and south pole? Magnets and Earth! In fact, Earth is one giant magnet. The planet contains molten iron in its core that moves around, creating a magnetic field that extends into space. The ends of a compass needle always point to Earth's north and south magnetic poles because they're attracted to them.

RUB SOME LEAVES!

Many explorers have studied nature. Charles Darwin, for instance, was interested in the biology of plants. He had samples sent to his home and he wanted to know why flowers came in different shapes and sizes. He also investigated how flowers cross-pollinated (which is when pollen from one flower is transferred to another).

As part of his studies, he made many drawings of different plant specimens, but he was by no means alone. Alexander von Humboldt collected plants from wherever he travelled and would dry and prepare them to send back home. Alfred Russell Wallace, who explored the Malay Archipelago, studied plants and animals too, as did David Douglas, who explored North America in the 19th century. For this activity, you're going to document the leaves in your garden, local park or other green space.

WHAT YOU'LL NEED

- Some leaves
- Paper
- Crayons

INSTRUCTIONS

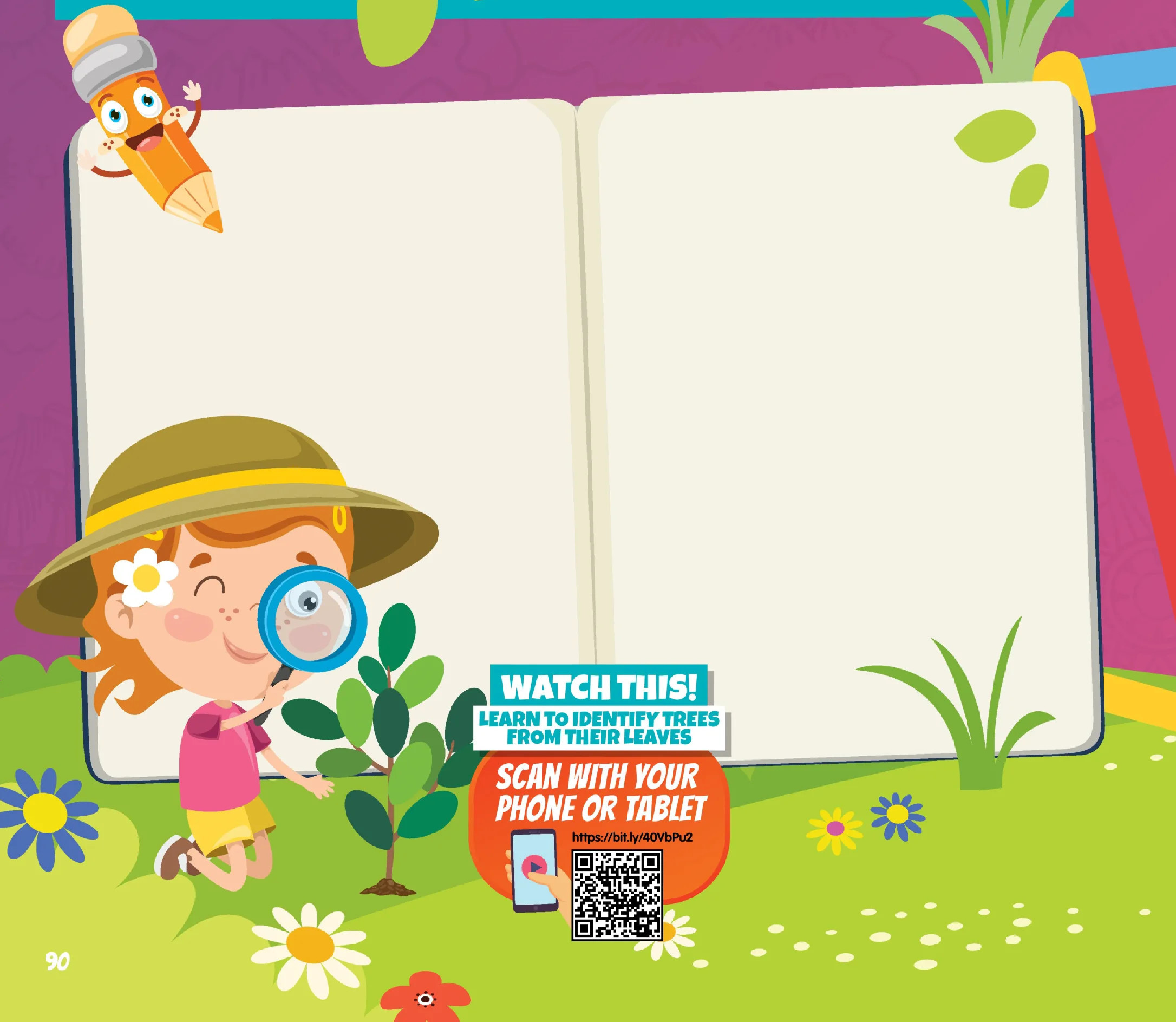
1. First of all, venture outside and identify different plants. Take one leaf from each one of them (make sure this is allowed – you don't want to get into trouble!).

2. Now, lay one leaf down flat on a solid surface and place a sheet of paper over the leaf. It's best if the paper is thin – don't use card!

3. Use a crayon to rub over the paper. As you do this, an imprint of the leaf will begin to emerge on the sheet. Do the same with your other leaves.

WHAT DID YOU LEARN?

Leaves are vital for the health of a plant. They collect the sun's rays and convert them into food in a process called photosynthesis. As you will have seen, different plants have leaves in different shapes and sizes. This allows them to collect those rays in the best way possible. Plants that don't need a lot of light, for example, will likely have smaller and thinner leaves, while plants that do need a lot of light will have larger leaves. Making a leaf rubbing allows you to easily study their structures.



WATCH THIS!

LEARN TO IDENTIFY TREES FROM THEIR LEAVES

SCAN WITH YOUR PHONE OR TABLET

https://bit.ly/40VbPu2

PLAY PARK BINGO

Remember learning about Roald Amundsen and how he became involved in a race against Robert Falcon Scott to become the first person to reach the South Pole? Well, this activity is not going to be as life-and-death as that, but it is competitive! The idea is that you and some friends race each other to spot the items on the card below – the winner gets to brag about their victory for the rest of the day!

WHAT YOU'LL NEED

- Copies of the bingo card below
- Pencils

INSTRUCTIONS

1. Create a handful of cards. On each one, cross off five random items – remove different ones on each card. This means you'll be looking for slightly different things.

2. Hand a card to each of your friends and set off on your journey to the local park on a busy day!

3. When you and your friends spot an item listed on the card, cross it off. The first one to cross at least 15 items on their card wins!

WHAT DID YOU LEARN?

You've discovered that exploration isn't necessarily something you have to do alone. In fact, most explorers travelled the world as part of a team. Having more people on a trip makes a journey safer. It also draws upon a larger number of skills – different team members will have different talents (and luck!). Some of your group may have missed some items, but together, you will have found them all!

B	I	N	G	O
SQUIRREL	BICYCLE	DOG	GRASS	OUTDOOR ART
MONUMENT	RUNNER	BENCH	SWINGS	BIN
RED FLOWER	PICNIC TABLE	TOILETS	YELLOW FLOWER	BIRD
SIGN	WATER	BUTTERFLY	FOOTBALL	FISH
ICE CREAM VAN	SLIDE	TENNIS COURT	HORSE	BOAT

CREATE AN AEROPLANE!

Did you know that experts can't agree on how aeroplanes stay in the air? The most popular theory is that air across the top of the wing moves faster than the air beneath it, so there is more pressure above, creating a lifting force.

It's a good job that aeroplanes can fly, otherwise later explorers would not have been able to get from one place to another quickly. In tribute, let's create our own plane!

WHAT YOU'LL NEED

- A piece of paper

INSTRUCTIONS

1. It's best to use an A4 piece of paper for this activity. Start by laying it flat on a table.

2. Now, fold the paper in half lengthways so that one side touches the other, and open it back up.

3. Then, you need to curl the corners inwards so that their edge meets the line that runs down the centre of the paper.

4. You can now do the same again. This will make the plane look much more sleek and create a heavier nose, too.

5. Now, fold the paper in half along the line you created in the first step. You will have a triangular-shaped piece of paper.

6. Lay the plane on one side and fold down a flap to make a wing. Do the same on the other side. Your plane is ready to fly.

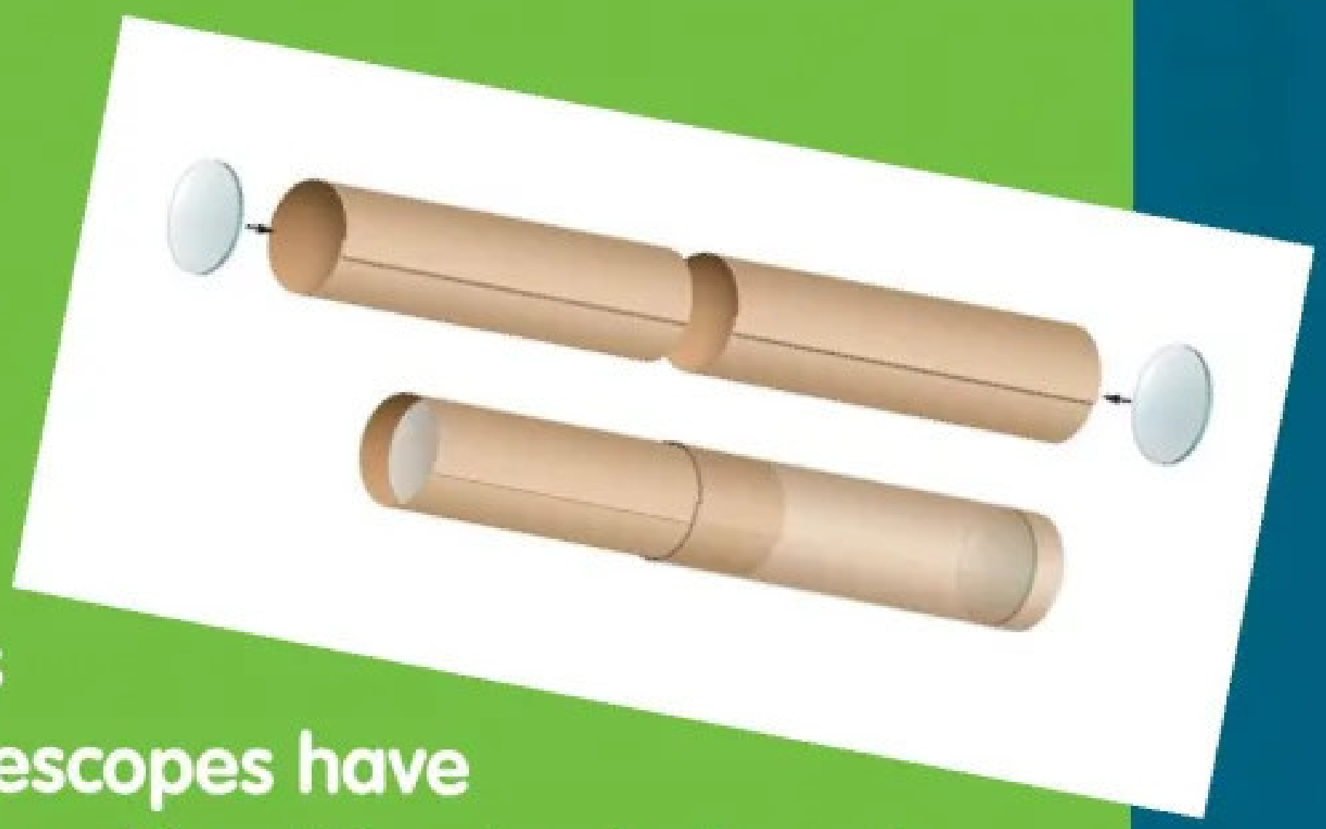
WHAT DID YOU LEARN?

Take hold of the bottom of your plane between your fingers and, with a flick of the wrist, send it across the room. Try with different levels of intensity or give it a go outside. Does it go faster? Slower? Do some actions send the plane crashing to the ground? Now, experiment. Curl the edges of the wings, or try folding the plane even tighter. Does this make a difference to how well it flies?

DID YOU KNOW?

The Wright brothers created planes out of paper to test their ideas before building a plane for real!

MAKE A TELESCOPE



Telescopes are useful tools. They became popular in the 17th century thanks to an invention by eyeglass maker Hans Lipperhey, and allow you to get a better view of things.

One was used by Captain James Cook to view planets and stars. Telescopes have also allow humans to explore space without having to travel to planets and moons. Here, you will make one for yourself.

WHAT YOU'LL NEED

- Two kitchen roll tubes
- Two convex lenses or two different sized magnifying glasses
- Tape
- Scissors

INSTRUCTIONS

1. Take one of your kitchen rolls and cut it down the middle. Now, curl it back up so it's a little smaller than it used to be and secure it with tape.

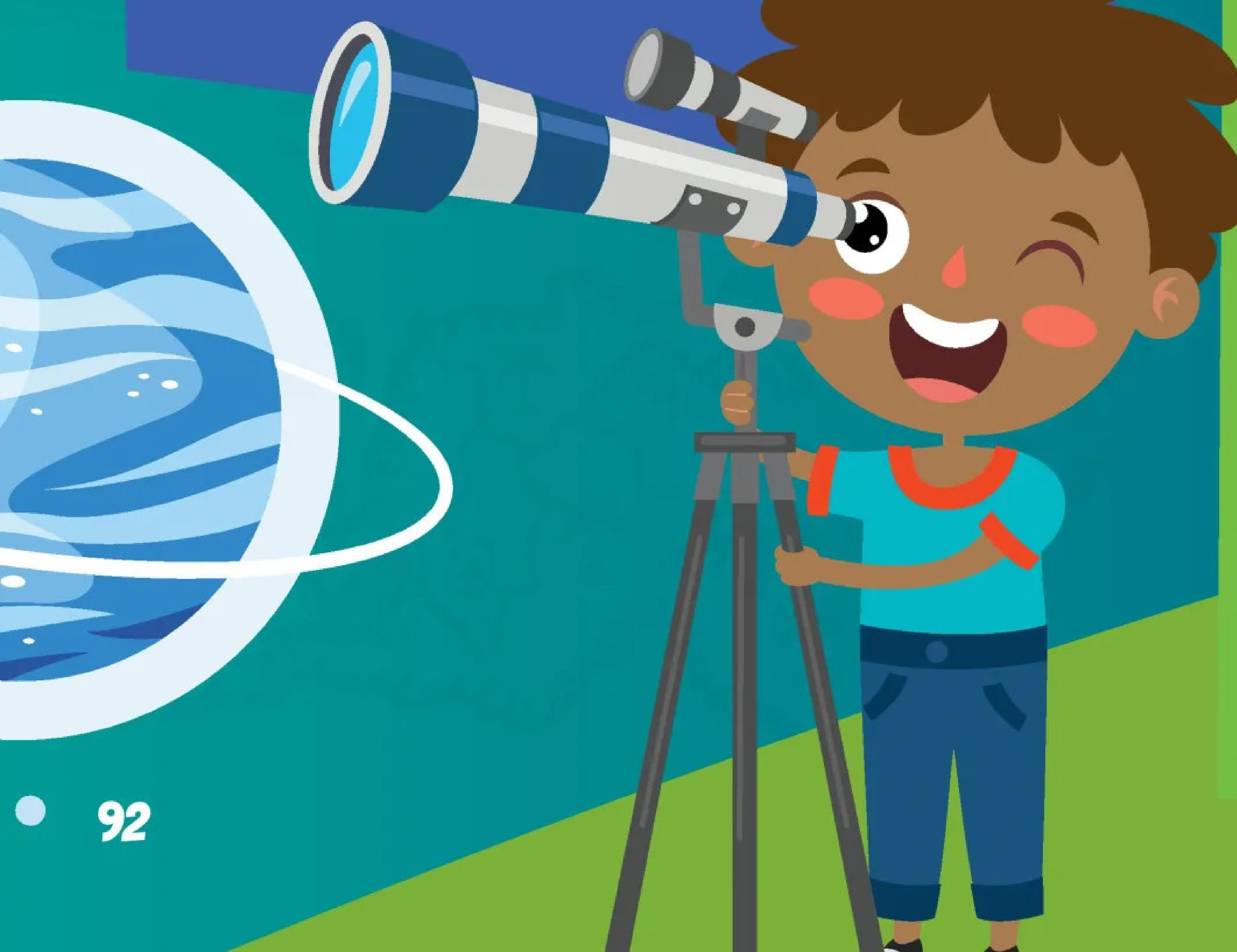
2. Place the tube inside the other tube, but don't slide it all the way in! Since you've made it smaller, it should slide in easily.

3. Take one lens – it can be from an old pair of spectacles – and tape the edge to the inner tube so that its curve points into the tube.

4. Take the other lens and tape it to the outer tube so that the lens faces outwards. You can now look through the lens on the inner tube!

WHAT DID YOU LEARN?

You have made what is called a refracting telescope. As you look through the telescope, you are seeing light that has been bent by the two lenses. By sliding the outer tube back and forth across the inner tube, you will be able to focus the image. It should appear closer than it actually is.



EXPLORE THE WORLD WITH HOPPER

Google is an amazing resource. You can use its resources to explore the world without even leaving the house – perfect if it's a rainy day and you're stuck for something to do! By using Maps (https://www.google.com/maps), you can enter an address and drag a little yellow person on to a street to see what it's like in real life. Alternatively, you can visit Google Earth (https://earth.google.com/web) and check out one of the tours. You can also go on an adventure with a little penguin called Hopper, and that's what we're going to do here. It's one of many art experiments created by Google, and it's a heap of fun!

DID YOU KNOW?

The largest ever refracting telescope was built at Yerkes Observatory in Wisconsin, USA, in 1897.

WHAT YOU'LL NEED

- A computer or tablet

INSTRUCTIONS

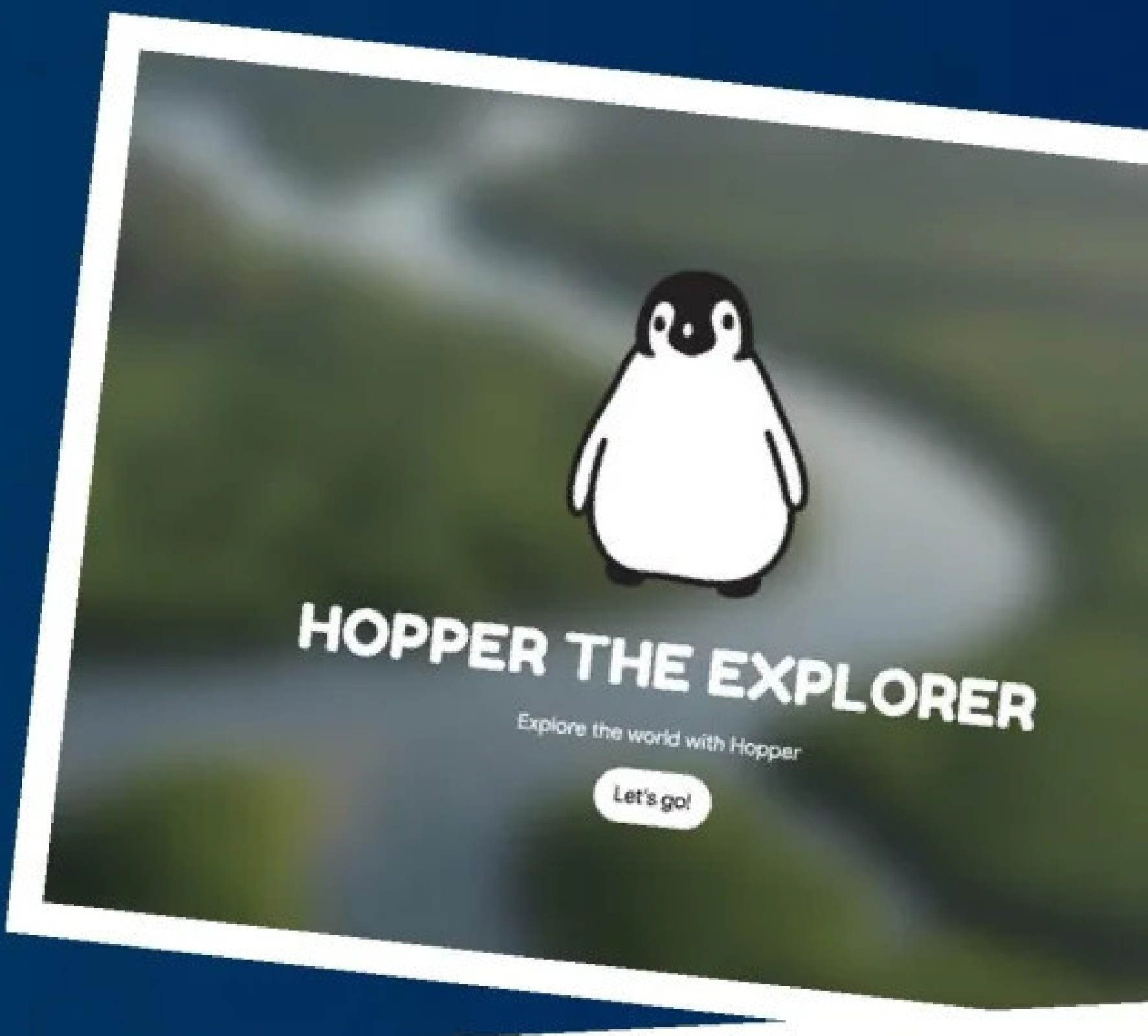
1. Visit https://artsexperiments.withgoogle.com/hopper, wait for the world to load, and select Let's Go!

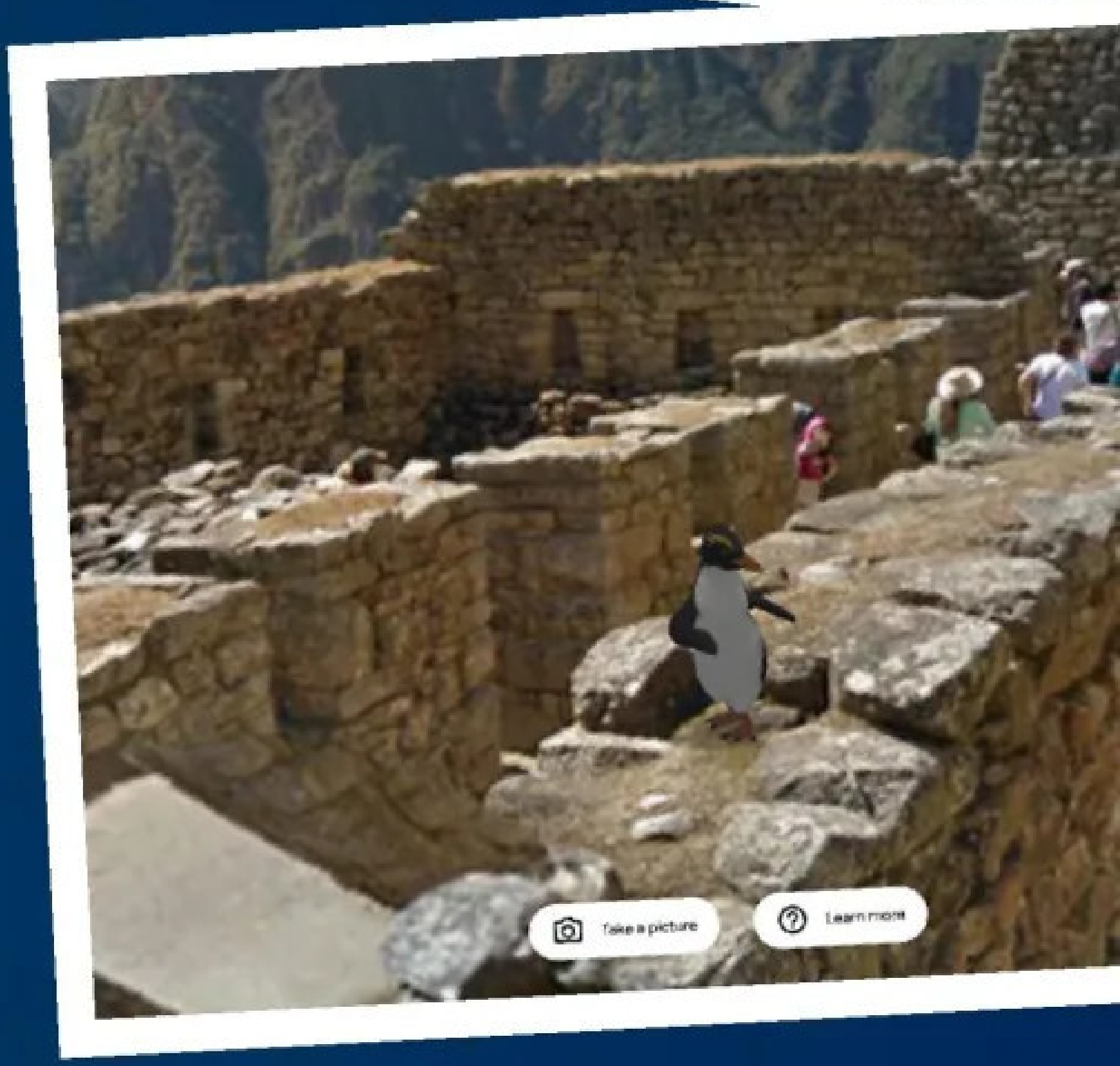
2. Once you have done this, drag Hopper the penguin on to one of the markers on the map. You can also type in a location.

3. You will now find that Hopper has travelled to your chosen location. Select Learn More to discover details about that location or even take a picture!

WHAT DID YOU LEARN?

You can click back to return to the map at any time and continue on your journey, exploring more and more of the world. It shows how technology is making the world more explorable than ever before, even if you're not about to get out and about yourself!





CREATE A TRAVEL VIDEO

Although lots of past explorers have written about their expeditions and even drawn what they saw, explorers in more modern times have also made documentaries. Among the most famous was Aloha Wanderwell (as you learned on pages 62 and 63), but others have included Jacques Cousteau, who co-directed an underwater documentary called *The Silent World*, and Mike Horn, whose expeditions have included a solo 18-month trip around the equator on foot and by sailing – shown in the 2000 documentary *Latitude Zero*. For this activity, you're going to make a film of your own!

WHAT YOU'LL NEED

- Phone or camera
- Tripod (optional)
- Computer/tablet
- Editing software

INSTRUCTIONS

1. By 'angle', we don't mean how you're going to hold the camera. Instead, you need to think about the story you want to tell. Since you're going to be making a film about a trip you're making, decide if you're going to film yourself travelling, specific events or even both.

2. Make sure you know how to use the camera properly. Experiment with different settings, film example footage and, if you want to take selfies, work out the best technique for doing so. Knowing how to start recording in seconds will be useful if something amazing suddenly happens.

3. If you want a super-stable shot, then a tripod will ensure the camera remains steady. Some smartphones will automatically steady shots, so don't worry too much if you don't have time to set up a tripod or don't have one.

4. Before you start filming, why not watch a few travel documentaries first? Make a note of how they film them. Lots have footage of a location mixed with pieces to camera – that means parts where you talk directly to your viewer. These can move your story along nicely.

5. Now, you can get on with the creative part: recording your footage. Record as much as you can (just be aware that cameras and smartphones don't have infinite space!). You may want to save each clip with a recognisable name so you know what it shows without always playing it back!

6. When you have enough footage, you can start editing it. We recommend Lightworks, a free, beginner-friendly video editing app for Windows, macOS and Linux computers. You could also try the free version of the online video editor Clipchamp, created by Microsoft.

WHAT DID YOU LEARN?

It's important for explorers to be able to document trips and tell others about them, and making a film about your expeditions is a great way to share your experience with other people. By asking for feedback from your friends and family, you can also work out what others are most interested in seeing – do they enjoy watching you make new discoveries, or simply like seeing places they have never been to themselves? Why not include a voiceover to explain certain parts of your expedition or use graphics to show why something you saw is important?

TOP TIP!

When you're travelling, look out for leaflets describing interesting things to see locally. They are often packed with information that you can use in your videos.

WATCH THIS!

HOW TO MAKE A TRAVEL VIDEO

SCAN WITH YOUR PHONE OR TABLET

https://bit.ly/3Mh775M

CREATE PLASTER CASTS OF ANIMAL FOOTPRINTS

When explorers first visited the so-called New World, they came across some unique animals. One way of documenting animal finds is to look more closely at their footprints. David Attenborough is among those who learn about the behaviour of animals by studying their footprints. You're going to do the same by making a plaster cast of them to look at in more detail later!

WHAT YOU'LL NEED

- Plaster of Paris
- Container
- Measuring cup
- Thick, long strips of cardboard
- Spoon

INSTRUCTIONS

1. When you're on your expedition, look for footprints in the ground. The deeper the footprint, the better your cast will be.

2. Follow the instructions on the Plaster of Paris to create a paste. You willy just add one part water to two parts Plaster of Paris.

3. Use a strip of cardboard to create a ring around the footprint that you want to take. Push it into the ground a little.

4. Before you start filming, why not watch a few travel documentaries first? Make a note of how they film them. Lots have footage of a location mixed with pieces to camera – that means parts where you talk directly to your viewer. These can move your story along nicely.

5. Now, pour the Plaster of Paris into the footprint and wait for about 10 minutes to allow it to set. Give it a prod to make sure it has gone solid.

6. Once it's ready, lift the Plaster of Paris off the ground and look underneath. You will be able to see an animal footprint, which you can then clean and examine.

WHAT DID YOU LEARN?

You have just created a cast of an animal track, but do you know what animals made the footprint? Go online and research animal footprints – try to match the one you have with the images you see. Once you've worked out what animal it is, look at the pattern of the footprints, and you can learn even more about them.

GO HIKING!

Exploring the countryside is a lot of fun. There will be lots of things to see, do and touch whether you're hiking through a field, visiting a lake, stream or waterfall, or going uphill. Make sure you go along with an adult so that you're safe – the countryside can be a dangerous place at times! – and ensure that you are well prepared for your adventure.

WHAT YOU'LL NEED

- Clothes for wet and dry weather
- Clothes for cold and hot weather
- Hiking shoes
- Hats and gloves
- Wet wipes
- Lip balm
- Sun cream
- Safety whistles
- Camera

INSTRUCTIONS

1. It's worth going online before you set off on your adventure to find guides, maps and recommended trails. Just type the name of the area you're going to visit, and there should be lots of content to read and maybe even download.

2. Treasure hunts are popular and you may find there is one near you. In a lot of cases, there is a small fee to pay to take part, but you're provided with clues and puzzles to solve as you try to unearth the location of some hidden treasure.

3. You can also find scavenger hunts online. Some of these are not specific to a local area, and simply list items that can be found on a hike. The idea is that you look for them and tick them off the list. It's a great way to break up a walk!

WHAT DID YOU LEARN?

As you can see, a hike isn't just a quick walk around the block. It's a chance to explore and see new things. Most importantly, it's about having a great adventure!

TRY THIS!

Why not grab some paints and colour in your plaster cast? You don't even need to stick to the colour of the animal. You could create something really vivid with bright coloured paints!

KEEP EXPLORING!

There you go! You have come to the end of your journey, and what an amazing trip it has been. You have seen how explorers have made discoveries across land and sea. You have also seen how they have told us many great things about the past while revealing cool things that will help us in the future.

By making geographical discoveries, scientific breakthroughs and introducing people from different countries to one another, explorers have shaped the world. It's hard to imagine what life would be like today if explorers had not ventured out of their comfort zone and made trips that no one had done before. When people come together, they share ideas and learn about each other's culture. Travel broadens the mind!

But it's important to remember that to be beneficial, exploration has to be carried out responsibly. In the past, colonialism created countries such as the United States, Mexico and Brazil, but it displaced and marginalised many cultures, so it's good to see that modern-day explorers are far more respectful of other people and their way of life. The emphasis today is on making the world better for everyone by learning lots more about it!

WORD SEARCH

Here are some other things explorers may use! Can you find them all?

Y	M	E	Z	I	E	H	P	C	W	V	O	P	T	S
J	U	M	H	U	P	L	A	P	R	F	R	A	M	F
W	O	T	N	H	T	S	T	M	O	G	I	X	Q	G
S	L	Y	H	C	E	B	C	S	M	R	A	H	V	K
N	N	D	G	X	B	I	W	R	I	O	B	W	L	R
C	N	O	T	S	A	N	U	X	S	H	C	I	G	E
P	W	A	B	E	N	O	Y	N	U	U	W	K	F	X
C	N	I	O	R	D	C	E	P	O	R	C	O	I	Z
T	E	N	T	A	A	U	N	F	I	G	N	Q	Q	F
N	Q	M	X	L	G	L	O	N	Z	K	T	L	S	E
Y	G	X	C	F	E	A	C	F	D	F	S	S	T	J
L	R	R	X	W	S	R	K	U	W	D	T	R	I	K
M	V	R	B	U	Z	S	U	M	V	O	E	I	Z	V
A	T	R	B	Y	H	R	F	V	V	T	X	L	F	J
P	D	P	Q	L	Y	C	G	E	M	B	V	P	R	X

BINOCULARS
TENT
HAMMOCK
FLARES
SEXTANT
BANDAGES
STOVE
ROPE
WHISTLE

QUICK QUIZ

WHY NOT TEST HOW MUCH YOU'VE LEARNED SO FAR?

WHAT IS GEOCACHING?

A: A fun way of finding hidden treasure
B: A place where temporary computer files are stored
C: One of the world's currencies
D: A form of travel

WHAT DOES A NAVIGATIONAL COMPASS DO?

A: Allows you to draw circles
B: Indicates direction
C: Allows you to pass through a country
D: Store items

IF PLANTS DON'T NEED A LOT OF LIGHT, THEIR LEAVES TEND TO BE:

A: Yellow
B: Larger
C: Smaller
D: Infected with bugs

WHICH STAR DO YOU NEED TO LOOK FOR WHEN USING A QUADRANT?

A: Poland
B: Polaris
C: Polaroid
D: Policia

WHAT FORM OF TRANSPORT MADE EXPLORING ANTARCTICA EASY?

A: Car
B: Ship
C: Train
D: Aeroplane

ANSWERS: A, B, C, B, D.

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FUN FACTS ABOUT EXPLORERS

Europeans explored the Americas, Africa, Asia and Oceania during the Age of Discovery

52

NUMBER OF DOGS WHO ACCOMPANIED ROALD AMUNDSEN ON HIS SOUTH POLE EXPEDITION

WHEN CHRISTOPHER COLUMBUS SET OFF FOR ASIA, HE ENDED UP 8,000 MILES AWAY!

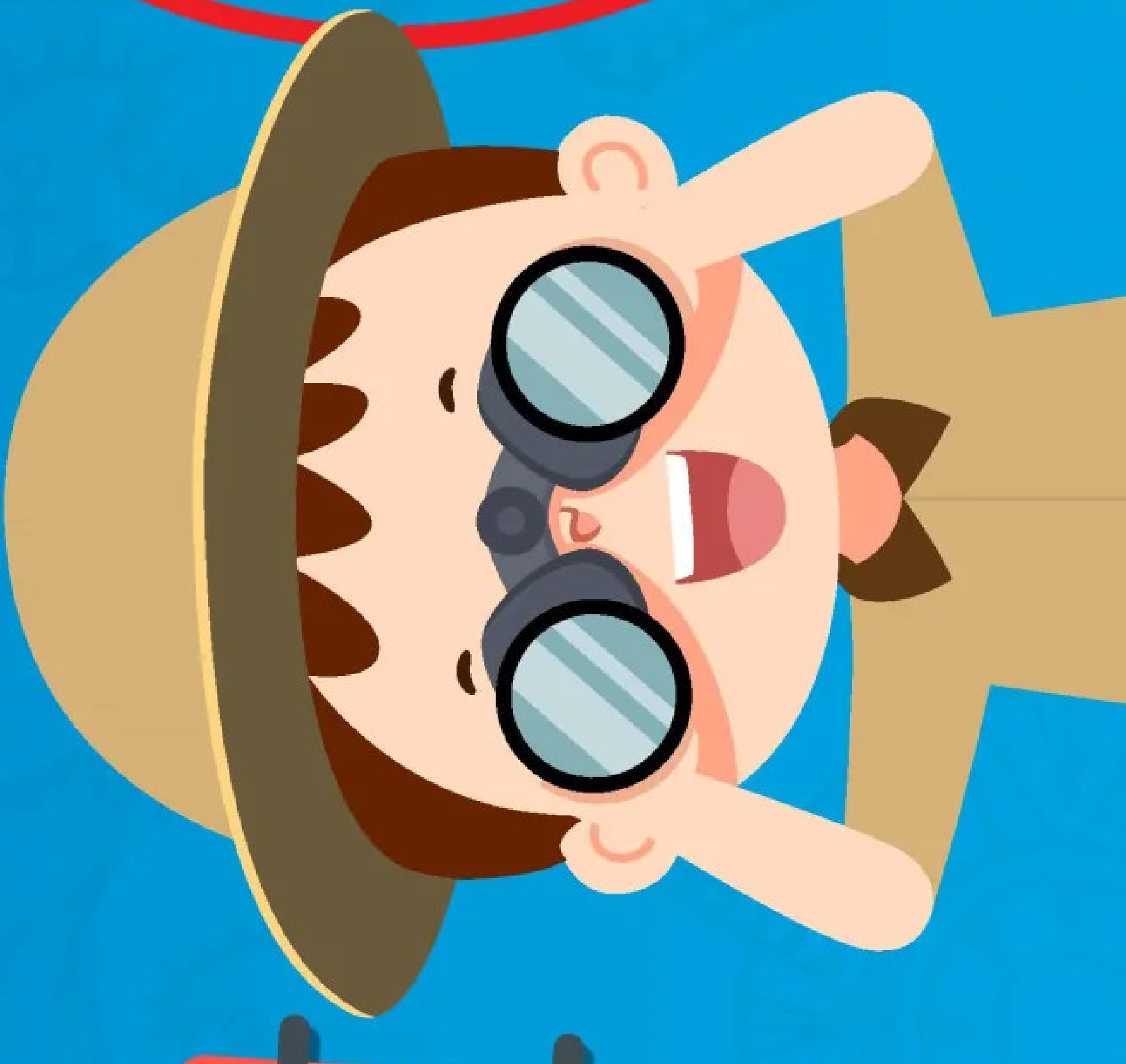
3

Number of times James Cook sailed around the world

Viking explorer Leif Erikson was the first European to visit North America – but he kept his discovery quiet!

72

NUMBER OF DAYS IT TOOK NELLIE BLY TO TRAVEL AROUND THE WORLD!



40

NUMBER OF LANGUAGES SPOKEN BY ENGLISH EXPLORER RICHARD FRANCIS BURTON

ALOHA WANDERWELL DROVE A CAR AROUND THE WORLD FOR FIVE YEARS!

24

NUMBER OF YEARS MARCO POLO SPENT TRAVELLING

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WHAT WILL YOU DISCOVER?